

THE  
MEDICAL EXAMINER,  
AND  
RECORD OF MEDICAL SCIENCE.

NEW SERIES.—NO. XCVI.—DECEMBER, 1852.

---

ORIGINAL COMMUNICATIONS.

---

*Surgical Sketches.* By W. E. HORNER, M. D., Prof. of Anatomy in the University of Pennsylvania, Senior Surgeon at the St. Joseph's Hospital, &c. &c.

*A Military Hospital at Buffalo, New York, in the year 1814.*

The concentration of numerous forces at this post early in the spring—the arrival of many officers of high grade—the accumulation of large amounts of military stores—the daily drills and parades lasting from eight to ten hours—the presence of Major General Brown in command, with the recently appointed Brigadiers General Scott and Ripley of the Regular Army, and the chivalrous General Peter B. Porter, of the New York militia, all led to the conviction that a great enterprize was at hand; and that the young medical aspirants of this division of the United States forces, and all of us who felt desirous of some degree of experience in surgical matters for our better instruction, were likely to obtain it before long. The cessation of the wars in Europe, by the abdication and downfall in April of the most renowned of moderns, the Emperor Napoleon, in leaving the

British veterans unemployed at home, was an assurance also that they would be brought into the field against us; and that a conflict of the most sanguinary kind for the numbers engaged was about to commence.

Each party sustained by its warrant of national bravery and enterprize, and stimulated by a belief of wrongs unjustly suffered, felt the desire of redressing them through the ultima ratio on the field of battle. On the one side, we had the institutions of our country to make good against an enemy of all others the most capable of prostrating them, and of reducing us once more to a colonial state. The Government of Great Britain, on the other side, had to assuage the recollections of the American Revolution, and to punish us for the audacity of a declaration of war against her, made at a time when she was too much employed in Europe to direct any large division of her forces upon us.

It was evident that a struggle of no ordinary might was at hand. The skill, the confidence, and the steadiness of the heroes of the Peninsular campaigns, who had fought under Wellington, were to be tried against the ardor, the impetuosity, and the devotion to country of American soldiers. Laurels gained were to be in the same field against laurels in hope or desire. The tramp of battalions, the display in line, the practised fusillade, the dashing evolutions of artillery, the mimic charges of cavalry, the shrill penetrating word of command as it rang through the air,\* all served to keep up the military animation now glowing in the bosoms of the American columns.

\*General Scott's voice at this time was as remarkable for its military tone, as his bearing and person were for their military contour. His stature is so well known in the United States, that it is scarcely necessary to say that he stood upwards of six feet. This favorite of that day with both soldiers, officers and the community, had risen very rapidly from the commission of Capt. of Artillery to the rank of Brigadier General. Opening his career of distinction at the battle of Queenstown Heights in 1812, as Lieut. Col., his valor on the occasion, and in the campaign of 1813, when Toronto (then Little York) and Fort George were taken, marked him out as one of the master spirits of the time. In 1814 he therefore appeared at the head of a brigade, and as the right arm of Major General Brown, an officer of great energy, but less practice than General Scott.

Such has been the rapid progress of our country in all the elements of power and of greatness since that period, that now are scarcely to be realized the difficulties and discouragements of its position then. It was at that period a much more responsible affair for the infant power of the United States to take a hostile attitude against the matured and colossal one of Great Britain than at present. This, however, is said in the most friendly spirit, and with a full desire that empires so capable of mutual injury and of disturbing the repose of the entire world, may both have the good sense and the high moral tone, to cultivate to the utmost reciprocal good will, and the commercial interchange of objects of national skill and industry, upon which the prosperity and happiness of both countries so essentially depend.

In the year 1813 I had seen but little service, my commission as Hospital Surgeon's Mate, dated July 3d, and signed by Gen. Armstrong, Secretary at War, having come to hand too late for any of the important field operations. The town of Little York, Upper Canada, had been taken, April 27th, and Fort George, at the foot of the Niagara River, on May 27th. The former with a very heavy loss, principally from the explosion of a British magazine; among the victims to which was General Zebulon Pike, the most promising officer of the time.

The American force at York consisted of about seventeen hundred men, and the British of about eighteen hundred. The former lost three hundred and twenty in killed and wounded, the latter about four hundred. Dr. James Mann,\* Hospital Surgeon being attached to the expedition, says that the American column halted at a distance of four hundred yards from the enemy's batteries to reconnoitre, and that at this moment the explosion occurred, whereby sixty rank and file were killed, and one hundred and eighty wounded and mangled in a most wretched and deplorable manner, by the fall of stones which formed the magazine.

The attack on Fort George commenced by a heavy cannonade on the 25th and 26th of May, from Fort Niagara and batteries recently erected, and the assault was made on the 27th. In the attack on Fort George, the Americans had about four thousand troops, of which twenty-seven were killed and eighty-seven

\*Medical Sketches, &c. p. 61. Dedham, 1816.

wounded. The British loss was estimated at one hundred and two killed and 175 wounded.\*

The battle was fought near the shore of Lake Ontario. Dr. Mann, who was on the spot immediately after the action, says that he found on the high bank in a space of fifteen by two hundred yards near four hundred men either killed or wounded, the number being made up from both armies as they lay intermixed. The contest was evidently a very severe one.

Expeditions having a disastrous result were sent out afterwards, one to Stoney Creek, and another to Beaver Dam. In the first, the two general officers were taken prisoners, and the troops returned precipitately to Fort George. In the second, a brilliant command of six hundred men laid down their arms to a body of the enemy scarcely large enough to guard them, having been made by a course of strategy to believe that they were surrounded and on the eve of an attack from an overwhelming force.

Many capital operations both upon the wounded Americans, and English who were taken prisoners, resulted from these several actions.

On my arriving at Fort George in August 1813, the army was tranquil, and there was no special duty for myself. At that time, it had been determined that the forces should leave this position and make a descent upon Montreal.

The General Hospital was then at Lewistown under Dr. Mann. Nearly about this period more than one third of the soldiers of the army were on the sick report. Half of the medical staff attached to regiments were disabled. Of seven surgeons' mates belonging to the Hospital one died, three had leave of absence, and the other three were for a short period sick. At one time, with a sick list of some six or seven hundred men, only three surgeons were present for duty. The diseases were typhus and intermittent fevers, diarrhœa, and dysentery.†

From the preceding battles and from some skirmishes on the outposts, there remained many who, from the nature of their wounds, were incapable of further military duty.

A detachment of some seventy three such soldiers, of which I

\*Mann, loc. cit. p. 62.

†Mann loc. cit. p. 66. et. seq. See appendix No. 1.

still have the original list, dated Sept. 20, and also the General Order directing their destination, was committed to my professional charge, under the command of Lieut. Whiting, 23d Infantry, with direction to take these "brave and unfortunate men" to Greenbush by Oswego, and that they be treated on the way with the utmost kindness and attention. Many of them had been most distressingly mutilated by the fall of stones at the explosion of the York magazine, and some still required surgical dressing. Military orders are of obligation, and the execution of them was instituted forthwith.

Dr. Mann. loc. cit. p. 94, has inserted the name Hugo, and there is also some mistake about the officer in command, it, according to him, being Lieut. Archer, regimental pay-master, instead of Lieut. Whiting. He may be in one sense correct, that the officers alluded to were possibly detached originally for the duty; but the documents in my hands show the persons who executed it to have been as stated by myself. The following general order and list of the invalids referred to is inserted, as upon it there may be names interested in the recent distribution of public lands to the soldiers of that period, and where the muster rolls and other authentic documents of service may have been lost, owing to the destruction by the enemy of the public archives at Washington by fire, the subsequent season.

*Report of wounded soldiers, subjects for furloughs in the General Hospital, at Lewistown, Sept. 20th, 1813.*

No.	Names.	Reg't.
1.	Jeremiah McDonald,—contracted hand,	15
2.	James McMinus,—fractured leg,	6
3.	Jacob Writer,—amputated leg and arm,	15
4.	William Hommy,—fractured leg,	15
5.	William Brady,—amputated arm,	2 Artillery
6.	George Walton,—amputated leg,	15
7.	John Leech,—wounded in the jaw,	6
8.	George H. Clair,—wounded in the foot,	15
9.	Abell Gussum,—amputated arm,	21
10.	Loran Pottle,—amputated arm,	3 Artillery
11.	Ransum Mix,—amputated leg,	6 Artillery
12.	William Cooney,—amputated leg,	22
13.	William Pinter,—wounded in the thigh and knee,	Rifle corps.
14.	Alexander Frazier,—wounded through the shoulder,	Rifle corps.
15.	Harvey Johnson—wounded through the knee,	21

No.	Names.	Reg't.
16.	James Hull,—fractured arm,	21
17.	Christian Shoemaker,—wounded in the back,	16
18.	Elijah Blodgett,—wounded through the neck,	23
19.	John Lawless,—wounded back and arm,	14
20.	Robert Davis,—wounded in the arm,	14
21.	Henry Corpe,—wounded in the wrist,	14
22.	Adam Feather,—wounded in the hand,	22
23.	John King,—wounded in the thigh,	2 Dragoons.
24.	James Andrews,—wounded in the leg and thigh,	2 “
25.	Lewis Myers,—broken arm,	2 “
26.	Henry Renchert,—wounded in the hand,	13
27.	James H. Nevers,—wounded in the thigh,	Rifle Reg't
28.	Guy L. Carpenter,—wounded in the shoulder,	“
29.	Edmund McKenny,—wounded thro' both thighs,	“
30.	And'w McGenly, wounded in thigh, and bad enough	14
31.	Jacob Dullas,—loss of eye sight (purblind.)	15
32.	Peter Robbins,—wounded stiff knee,	2 Dragoons.
33.	Jonas Horrington,—wounded in the shoulder,	2 “
34.	Thomas Hennessey,—wounded in the arm,	2 Artillery.
35.	Sergeant Nichols,—wounded in the shoulder,	3 “
36.	Sergeant Smith,—wounded thigh and shoulder,	2 “
37.	Patrick Mooney,—amputated arm,	6 “
38.	Timothy Ford,—wounded in the wrist,	2 “
39.	Sergeant Norton,—amputated leg,	14 “
40.	Thomas Broughton,—caries of the jaw bone,	6 “
41.	Samuel Benedict,—amputated arm,	23 “
42.	James Evens,—wounded leg,	15
43.	Sergeant Brown,—wounded in the thigh,	22
44.	David Parson,—amputated thigh,	Vol. corps.
45.	James Martial,—wounded,	23
46.	Wellehemius Slighter,—wounded,	“
47.	Lewis Rickmon, “	“
48.	Jonathan Patt, “	“
49.	Leban Cooper, “	“
50.	Daniel Brown, “	13
51.	John Rengleher, “	“
52.	Abel Parker, “	“
53.	Lewis Jones, “	“
54.	Eastman Corbin, “	25
55.	Waterman Horris, “	1 Artillery.
56.	Frederick Campbell, “	“
57.	Gian Lazino, “	“
58.	Thomas Moore, “	“
59.	John Lesso, “	“
60.	Nicholas Welch, “	“
61.	Jeremiah Nicholas, “	3 Artillery.
62.	Benjamin Shearman, “	14
63.	John Clemmons, “	“

No.	Names.	Reg't.
64.	James Conner,           wounded	
65.	Allin Rell,               "	
66.	James Nicholas,       "	
67.	Joseph Webb,           "	15
68.	Samuel Palmer,—amputated thigh,	2 Artillery.
69.	John Loudeman,—wounded,	"
70.	Joseph Davis,           "	"
71.	John Beard,             "     loss of fingers,	"
72.	Thomas Borden,—wounded in the hand,	15
73.	William Pringle,—discharged.	"

Greenbush was reached only on the 5th of November, and all further campaigning for the season was lost to the writer. This disappointment being unavoidable, it was hoped to retrieve in the present campaign (1814) the advantages thus missed.

Two brigades of regulars, one battalion of artillery, and, to which may be added, a brigade of militia volunteers and of Indians, under General Peter B. Porter, constituted the force of our army, amounting in all to four thousand men, or near it. This statement might be superfluous, but as the American force never exceeded that during the most active period, it exhibits a relation of force with that of wounded, which is of some importance. The generation which saw that array is now well passed away. It is only a few months ago that we read, as one of the remarkable occurrences of the time, that one hundred and fifty of the veterans of the war of 1812, had assembled in New York on some public occasion.

To the existing generation, who know Buffalo as it is, to wit, a well built, dazzling and opulent city, of from fifty to sixty thousand souls, with all the luxuries of modern times in it, its state at that period may be almost incredible. It has now an extensive mole, with a spacious harbor, which witnesses the hourly arrival and departure of magnificent and enormous steamers. At that time its creek was its only harbor, and that exhibited merely a few batteaux lazily drawn up along its shore, or some few canoes of the Indian tribes living in its vicinity. The place had literally no harbor which could be called such; the great Erie Canal was simply in cogitation, and the term rail road was unintelligible. The whole number of human habitations in the form of buildings was from eighty to ninety, small for the most part, and unfinished; there was among them but one brick house,

known as Langdon's tavern, and the majority of the buildings were what were called shanties. They were very much in the style of hog pens, with board tops, and their destination was to retail whiskey to the soldiers.

It is true Buffalo had been entirely burned up the preceding winter, but its population before then scarcely exceeded a thousand people, and the houses were indifferent wooden structures, from one hundred to two hundred in number. A thick forest, with its primitive growth, almost unmolested, and impenetrable, except by a bad, miry road, led from Buffalo to Black Rock.

They were both villages, and in a state of rivalry, as far as such a thing could go. Black Rock had the advantage of being the natural harbor for the lower end of Lake Erie, but as its shores were within short cannon shot of the British batteries on the other side, it afforded no real protection, except from the lake storms, less injurious at that time than the showers of balls. It had about ten houses in it. Lewistown, as Dr. Mann says, was a handsome site for a town, "the name of which it only bears," for it consisted of a few *log* houses.

The Falls of Niagara were in a primeval state almost, the only marks of civilization being an old saw mill at Fort Schlosser.

While I am on this subject, the facility of getting from Philadelphia to Buffalo may amuse younger readers. By leaving Philadelphia at 8 o'clock A. M., of one day, New York could be reached the next day at 11 A. M., by diligent travel, and sleeping at New Brunswick. Now, five hours accomplish the same distance. By leaving New York at 5 o'clock P. M., in the best steamer, and going all night, Albany was reached at 7 P. M. the next day. It took eighteen hours of constant travelling to go from Albany to Utica, and three days of severe travelling to go from Utica to Buffalo, all of which was great expedition in its time. Thirty-six hours in all will now pass the traveller from Philadelphia to Buffalo, near six hundred miles; and if rail-way cars be comfortable to him, he may sleep away any amount of that time. Instead of having his joints, as formerly, half dislocated by log roads from Batavia to Buffalo, and his tranquillity interrupted by the frequent announcement,



"very miry here, gentlemen, be pleased to get out, unless you want to stick fast in the mud,"\* he passes very rapidly from one place to the other.

These reminiscences, in marking the progress of our country, may surprise some of the younger members of the profession; they also have their use, though they may not be exactly surgical. They show the difficulties and expense of the transportation of troops and of munitions of war, to what was then an almost isolated and desolate frontier post.

In those days the communications of the country were so bad, that it is said every cannon conveyed from Albany to Sackett's Harbor, cost one thousand dollars, and that the "flour for General Harrison's army in the North-west, stood at one hundred dollars a barrel."†

The encampments of the army at Buffalo were broken up about the first day of July, 1814. Orders were issued for hospital preparations, a number of tents were left behind for future sick service, and for the sick of the regiments then on hand. The present Eagle Hotel and Rail Road Depot of Buffalo occupy the part of the city upon which the hospital was opened. The entire area allotted to it was to the west of the principal street, upon the first rise of ground there in ascending from the Creek. The space was about equal to that of the State House Square in Philadelphia, perhaps longer, in being more of an oblong.

While in the act of getting the hospital ready for service, it received a visit from General Scott, the universal favorite of the day, for his gallantry in the preceding campaign. As he rode through the hospital grounds, in his usual dashing style, with his aids, he said in passing, "Well, Doctor, but little work here as yet." "No, General, we are looking for some." "You will get it before long," was his reply, and off he careered with his staff.

\* Dr. Mann, (Med. Sketches, p. 94,) says of this road: "From Batavia to the Niagara river, was a tedious journey of forty miles, for sick men, and these roads, bad, at best," had been rendered almost impassable by heavy rains at the time he alludes to, October, 1813. Batavia then had forty houses.

† Ingersoll's *Historical Sketch*, &c., Vol. I., p. 283.

His promise was sufficiently kept, as the records of that celebrated period will show. It was the first time since the declaration of war that the tactics of an open field combat were tried. Line having been regularly displayed against line, each party directed by its special inspirations of skill and valor. There was, perhaps, never a campaign in which the belligerents came to a better understanding of what they might expect in battle at each other's hands; and where the leaders, though under the excitement of a state of war, left off with more military respect for one another.

The operations commenced with the crossing of the Niagara river near its head, at Black Rock, by the American army, under the direction of Major General Brown. This was accomplished on the night of the second of July, and early the next morning, Fort Erie, nearly opposite the place of embarkation, was invested. A few scattering fires were directed from the Fort, and it surrendered in the afternoon of the third. In this affair only two or three soldiers were wounded, one in the knee, by a grape shot, and another in the head, by a buckshot.

The first one must have had his knee in a flexed position at the time of injury, judging from the course of the ball. The ball entered on the end of the right tibia, opposite its head; it did not penetrate or injure the bone, but glancing obliquely upwards, came out in the inside of the vastus internus, just above the knee.

From the nature of this wound, and the pain the patient experienced, an unfavorable result was looked for. The patient was dressed with a pledget of lint, and a bandage, on the field. The day afterwards, he was brought to the general hospital at Buffalo. I removed the first dressing, washed the wound well with soap and water, and applied a pledget of lint spread with simple cerate, and confined it with a bandage loosely applied. The use of ardent spirits, then universal, and really considered as the water of life, (*aqua vitæ*) was forbidden. He was ordered to live on thin soup and boiled rice, and to keep the limb undeviatingly in a straight position. On the fourth day after the injury, the pain of the limb increased, and a swelling of the joint was perceptible; the part was so extremely tender to the touch that the patient could scarcely bear the falling of

the water on it from a sponge used in dressing it. A saturnine poultice was then applied ; he was bled to the amount of a pint, and, in order to counteract the irritation of the wound, which had kept him sleepless since its reception, an opiate was given. On the morning of the fifth day the pain had abated in a measure, the swelling was stationary, and a small quantity of pus was perceptible on the surface of the wound. The poultice was renewed, and the opiate at night. This plan of treatment assuaged the violent pain ; the sore got into a healthy condition on the tenth day. The suppuration became very copious and healthy, and the tension of the knee removed ; everything was then dispensed with, except the daily washing of the sore and a dressing of cerate.

The suppuration gradually diminished, the cicatrix contracted, the knee became flexible, and, on the fortieth day after the reception of the injury, he returned to his duties in the line, in consequence of a general order for all convalescents of the hospitals, able to bear arms, to repair immediately to their respective corps.

The other patient, who was wounded in the head, was a boy of fifteen, much esteemed in his company for his gallantry and attention to his duties. He being on a scouting party, employed in exploring the adjacent country, the party was met at night in the woods by another of our scouting parties on the same business. They mistook each other for the enemy, and a firing ensued accordingly, in which one on each side was wounded, before they discovered their mistake. This boy was brought to the hospital the next day ; he was in a comatose state, attended with delirium ; however, when spoken to, his attention could be directed to the person who addressed him. The wound was extremely small, in consequence of being inflicted by a buckshot, was situated on the right temple, and had been closed up by the tumefaction of its edges, so that only a small bloody scab about a quarter of an inch in diameter, was visible. The temple was much swollen ; he complained of great pain in the right ear and back of his head. The wound being closed, prevented the probing of it.

A poultice of bread and water (it being impossible to obtain milk,) was applied and confined by a bandage.

The patient, from his restless and painful situation, did not allow this to remain more than an hour or two; it was frequently applied, and as often displaced; it was given up the next day and the wound dressed with cerate. Third day, the appearance of the wound was not much altered, it had discharged a little blood and serum; the patient still restless, and moaning through excess of agony; his pulse was frequent and feeble. An anodyne at night. A little nourishment of soup was occasionally put into his mouth. The fourth and fifth day he was in pretty much the same situation as in the preceding, only it was more difficult to obtain his attention, the delirium and comatose state having increased. Death put an end to his sufferings on the morning of the fifth day.

On examining the head, it was found that the buck-shot had passed through the temporal muscle and entered the cranium through the anterior angle of the right os parietale, just before the squamous suture, penetrated through the dura mater into the substance of the brain, and passed through the cortical part of it, not far from the right lateral verticle, and lodged above the tentorium on the same side.

From the first day of July we had been busily employed, under the direction of Dr. William Thomas, Hospital Surgeon, in erecting hospital tents, procuring bunks and straw, and making every arrangement for the reception of a large number of wounded.

On the fifth of July the battle of Chippewa was fought, in which the first brigade, under General Scott, gained a complete victory over the enemy under General Riall.

Many prisoners, and most of the enemy's seriously wounded, fell into our hands, which, added to our own wounded, gave the surgeons of the hospital department as much business as they could well attend to. Many operations were performed on the field of battle, and all the wounded dressed there.

The entire loss in missing, killed and wounded, of the Americans, was estimated at three hundred and twenty-eight; that of the British was said to be much larger, owing to the effectiveness of the American musketry. The battle being fought on the banks of the Niagara river, the wounded were brought up in boats to the general hospital at Buffalo.

They were conveyed from the boats on Buffalo creek, to the hospital, a distance of three or four hundred yards, on blankets, the sides of which were nailed to poles nine or ten feet long. This formed an easy and convenient litter, by which four strong men could safely convey one wounded, without exposing him to the unspeakable pain from jolts, &c., which would be the inevitable consequence of transportation by wheel carriages. Besides this advantage of the litter, when the wounded soldier was to be placed on it, it was spread smoothly on the ground and he slipped gently on. It was then taken up carefully by the assistants and carried to the hospital, when the patient was either assigned at once to his tent, or placed on the hospital parade ground, as the convenience of dressing required. A litter thus constructed can be easily pulled away from under the patient without pain, and is, in that respect, much better than the brancard or the handbarrow.

The wounded on this occasion, for the most part, had this second dressing on the hospital parade ground; as they were brought up from the boats, and the weather was remarkably fine. They were then sent to their tents respectively.

The number placed immediately under my charge amounted to from sixty to seventy. After the battle of the 5th, a still more desperate battle, that of Bridgewater, was fought on the 25th. The details of this fight are of a most singular kind. It was intended by the British Generals, Drummond and Riall, for the 26th, but by accident came off on the 25th. It was characterized at almost every period by the desperation marking the storming and defence of a fortified post. The American force, it is believed, mustered not more than twenty-five hundred fighting men. The British force being recruited during the battle, exceeded ours. The battle lasted for five hours, and ended at midnight. The British Major General Drummond was severely wounded—the second in command, General Riall, was made prisoner. Major General Brown was badly wounded—General Scott also. General Ripley's hat was shot through. Every officer almost in the American lines bore marks of his participation in it, either by wounds actually received in his person or in his clothes. As I saw the remnants of this gallant force,

numerous were the cases of perforated hats—lacerated stocks—and gaping coats and vests; injuries which the difficulties of the times prevented their owners from readily repairing. Seventy-six officers, and six hundred and twenty-nine rank and file, were killed or wounded, of which number General Scott's brigade counted thirty-eight officers, and four hundred and sixty-eight rank and file. Of a force, then, of twenty-five hundred men, seven hundred and five were put *hors du combat* by the casualties of war, and it is thought that one hundred and fifty-five fell into the hands of the enemy.

The disorganization was so great from the loss of staff officers and soldiers, that it has been extremely difficult ever since to analyze this battle and show its precise results. The account published by the Hon. Charles J. Ingersoll,\* corresponds more nearly with the camp rumors and conversations of the time, than any thing else I have seen, and it has perhaps the additional advantage of recurrence to original documents in the War Office, and of personal inquiry from the leaders on this celebrated occasion. It may here be suggested, should this medical sketch excite further interest as regards military matters, the same work may be very advantageously studied concerning the other operations on this frontier during the campaign of 1814. As to its precise accuracy, a verdict from other quarters will have more authority. One might suppose that in a military organization, every thing may be told with absolute accuracy, and this will be the case in a state of peace. But the tumult, confusion, and hurry of real military operations, and the want of even common personal or mechanical conveniences to make out reports and prepare records, produce to some extent an unavoidable inaccuracy. No man can see all at once even over a small space; he is therefore under the necessity of using the eyes and the testimony of others in the same difficulty with himself, and consequently aggregate results are the nearest approach to absolute facts.

Even in a military hospital, on such occasions, it is impossible to keep pace with the events in each ward or division of it. Much passes without being known at all—and much with being only loosely known. There are many occasions or periods in

\* Historical Sketch of Second War, &c., chap. iv., Philadelphia, 1849.

which the mind is constantly engaged with present matters, and in thinking forwards; instead of thinking backwards, so as to collect, to compare, and to remember. A short lapse of time will obscure an impression or even efface it from the mind, and the advantage of it is thus sacrificed.

The British lost eight hundred and seventy-eight in killed, missing and wounded. All our serious cases of wounds were brought into the hospital at Buffalo; the lighter cases were left with the regimental hospitals. There were some few, but not many of the British wounded, taken prisoners, by no means so many as at Chippewa. Each side sustained fully its military renown, and each side claimed the victory. The regiments of the British line engaged in it have it still inscribed on their colors, according to the practice of their army on such occasions. By some it was considered as a drawn battle, and is still a subject of discussion in that respect in histories of that period. This battle was one of the most destructive field fights on record, for the numbers engaged.\*

It crowded our hospitals so completely, that the attention of the surgeons was required unremittingly from early in the morning till night, besides the constant sick calls at night. At one time the author had the sole attendance and dressing of one hundred and seventy-three sick and wounded. My fingers became so sore from incessant dabbling in water and in pus, that I could seize nothing without pain, and was constantly liable to let articles fall, from the sudden twinges of agony in touching them.

The American army was so weakened by the battles of the 5th and of the 25th, that it retreated to Fort Erie, and there began to fortify itself. The British army, in the mean time, was strongly reinforced, and moving up began their operations against the position.

\* Losses of opponents and their force on the field of battle, are, for the most part, conjectural, or founded upon reports through defective channels of information. Generally, losses on the hostile side, as well as amounts of force, are overrated on each side. The private official accounts rendered to the governments respectively, are the most accurate, because errors here might produce the most serious calamities in further operations.

Our pressure of hospital business continued till August the fourth, when an attack at Black Rock by a large force of the enemy, in view of capturing the munitions at Buffalo and the troops in the hospital, occasioned a sudden and general dispersion. Our requisitions for hospital rations for some days before this affair had been at eleven hundred, according to the steward's report.

The precise number of the wounded patients at this time, I have preserved no memorandum of, but it included a very large amount, as we had on hand those of both armies, somewhat intermixed; but the body of the British soldiers to themselves, in one division of the hospital. The wounded officers were generally quartered in the town, the soldiers being in tents.

The attack was made by twelve hundred men under Col. Tucker, and their operations were defeated by the gallantry of two companies of Riflemen under Major Morgan, who, having put up a breast-work of logs near the Conjocketa creek, a little below Black Rock, and removed the planks from the bridge crossing the creek, made his defence good at that point by cutting down the head of the British column as fast as it showed itself near the bridge. The fire was so destructive that the column would have been exterminated if it had persisted in its advance.

The danger of capture was so imminent, that while the action was in progress many of the patients of our hospital, who were capable of shifting for themselves, dispersed into the country, and others were removed to Williamsville, a small town of two or three hundred inhabitants, eleven miles in the interior.

At this place a general hospital was opened, and the writer placed in charge of the Buffalo one as a receiving hospital for the army now closely hemmed in at Fort Erie. The hospital at Williamsville had for its chief officers Drs. Ezek. Bull, W. Thomas, and T. Lovell. The latter was afterwards Surgeon General of the army, and had distinguished himself by his skill and zeal in the campaign of 1813, as well as in 1814, now going on. The hospital at Buffalo was directed to retain the most severe cases of wounds, and to send all others forward to the interior one, and to pursue this course for the remainder of the campaign. My care for the time was thus reduced to eighty or ninety, whose condition forbade removal. A phy-



sician in private practice in Buffalo, Dr. Coltrin, was allowed me as an assistant. He had been the partner in practice with Dr. Cyrenus Chapin, the oldest physician of the place. Dr. Chapin had been equally distinguished in his profession and by a military career. In the latter, he was Colonel of a regiment of volunteers, and had as such accomplished several remarkable feats of bravery, by his resistance to frontier attacks, by his hostile incursions into Canada, and by a singular re-capture of himself on Lake Ontario in an open boat, by rising, with some other American prisoners, upon his guard, and bringing boat and all into the American territory.

On the 15th of August, General Gaines being in command of the American forces, a general assault was made upon our works by the British General Drummond, the details of which are among the most stirring of the entire war. The British advancing in three columns before daybreak, two of these columns were repulsed with great slaughter. The third column, more successful, stormed the Fort, and while contending on a bastion for an hour for the final mastery, a magazine near it exploded and threw the column into the air; this made the repulse decisive. Nine hundred and fifty men of the British, Mr. Ingersoll says, were killed, wounded, and made prisoners, about one-third of their entire force. The American loss was but eighty-four. It was one of the most brilliant events of the campaign, and gave imperishable renown to the General in command. The conflict lasted about three hours.

Those killed at once by the explosion, were estimated at from two to three hundred. On the 16th the survivors of the wounded, amounting to one hundred and forty-three, were brought from the Fort to our receiving hospital at Buffalo, and shortly afterwards ordered to the Williamsville hospital. They were truly most pitiable spectacles of the havoc of such a battle. Some blackened over the whole face with the explosion of the powder, and their heads swollen to two sizes; some with eyes burned out; in others, limbs mangled and perforated by musket balls, with their clothes torn from their scarified backs, &c., &c. There was scarcely a detail of wound which was not exemplified among them. This was the third great battle fought

in fifty days from the opening of the campaign, and it alone was enough to show the horrors of war. It would be impossible to recall the precise impressions of that period, the military man sees in such events the steps of his glory, but the surgeon has only the impression of the woes of war; of affrighted women and children leaving their homes precipitately to escape the bloody fury of an enraged enemy with his savage allies; he hears only the groans of the wounded, sees the horrid mutilation of their bodies, their want of comfortable accommodations and provisions, and the imperfect attendance from press of business. Since July the 2d, our hospital had been recruited by two pitched battles, one general assault upon our position at Fort Erie, by the defence of Black Rock under Major Morgan, and by a skirmishing, bombarding and cannonading, which had scarcely the interval of an hour from day to day.

These operations continued with but little interruption till Sept. 17th, when a sortie was made from Fort Erie. The besiegers were driven off from their works, and their cannon spiked or rendered useless, and three hundred and eighty prisoners were brought in. The American loss was five hundred and twenty-seven in killed, wounded and missing; the British loss six hundred and nine. Mr. Ingersoll says one thousand, nearly a fourth of their army. The sortie was a blow of consummate skill and daring, attended with the most heroic feats, in which General Peter B. Porter bore a conspicuous part. General Jessup considered it the most splendid achievement of the campaign.\* This feat established the military fame of General Brown, who had resumed the command; and brought the campaign virtually to a close, as the subsequent part of it was comparatively uninteresting.

A final termination was put to the campaign on Nov. 5th, by the complete evacuation and blowing up of Fort Erie by the Americans. Offensive operations had now ceased to be thought of from the vast accession to the British forces; and the attention of government was directed exclusively to the making our own territory secure. The British Commissioners at Ghent, at this period, had commenced with the prefatory and absolute demand,

\* See for a detail of it, Ingersoll, loc. cit. p. 151.

that an immense belt of territory, coterminous with our northern frontier of lakes and rivers, must be given up, all Michigan, all Illinois, one third of Ohio, and the navigation to the ocean of the Mississippi. Other terms equally humiliating were mixed up with these. Washington had been captured, and everything indicated a recurrence of the scenes of the American Revolution. The government proposed a conscription of one hundred thousand men to begin with for the next campaign. Happily more moderate views finally dictated the terms of peace, and the victory of New Orleans under General Jackson ratified them in the judgment of both parties.

After the blowing up of Fort Erie, by the American garrison consisting of Col. Hindman's command of Artillerists, the author was placed in charge of them, with great pleasure to himself, owing to the high renown they had acquired. This battalion had so distinguished itself during the whole of the campaign, as to attract even the commendation of the British officers, who had got the impression that it was under the direction of the most experienced French artillerists. They were quite surprised on learning that the officers were all Americans, and none of them beyond thirty years of age.

On the 23d of December the General Hospital was closed at Buffalo, and the patients sent to Williamsville. Being thus freed, my service for that campaign closed, and I left the station for Washington on the 24th, having in hopes promotion for the next campaign, as we then knew nothing of the pacific tone which the negotiations at Ghent had assumed.

From the preceding narrative, it will be inferred that every description of wound was to be met with, as from the musket ball, from the grape shot, cannon ball, fragments of shell—in fact all the missiles used in warfare. There were but few instances on either side of the bayonet wounds, as troops seldom close so much as to inflict them.

Men who have witnessed the conduct of others during protracted scenes of danger, are struck with the great disregard of life which seems to infuse itself into their habits. Man is the only animal who, from being naturally cowardly and afraid of pain and danger, gets so as to disregard them both. Dr. Mann (*Medical Sketches*, p. 175,) has remarked justly, that “long ab-

stinence, watchings and unremitted hardships, soon break down not only the spirits but strength of an army. But when well fed, the men cheerfully endure fatigue and cold, and expose themselves to the most threatening dangers, regardless of consequences. Familiar with death, the soldier soon forgets that the feeling of horror was once attached to its name. The love of country, honor, the pride of conquest, incite him to acts of heroism. When duty calls to confront the enemy, he obeys the summons with the same alacrity as when invited by the alluring voice of pleasure to his amusements." Even female followers of an army fall into this mood. Among us was one from Kentucky, remarkable for her height, muscular figure, for the loss of one eye, and for her volubility in oaths and queer modes of execration when jeered at or incensed. In the preceding year, her father and brother had been among the victims of a celebrated but execrable massacre at the River Raisin, of which she was witness. Storming with feelings of revenge, at the opening of this campaign, Betsey, dressed as a soldier, entered the ranks, and at the battle of Chippewa executed her firing with the precision of one of the line. Her company was much exposed, and her immediate comrades shot down; she nevertheless continued in line, until the Captain told her it was time to leave, that the wounded men required water and attentions, and that she had better serve them. She obeyed, came into Hospital with them, and was one of the most faithful and kind of nurses, notwithstanding her recklessness of conduct in other respects.

I remember, one day, in making my hospital rounds, a patient just arrived presented an amputated forearm, and in doing so could scarcely restrain a broad laugh; the titter was constantly on his face. "What's the matter? this does not strike me as a subject of laughter." "It is not, Doctor, but excuse me, I lost my arm in so funny a way, that I still laugh, whenever I look at it." "What way." "Our first Sergeant wanted shaving, and got me to attend to it, as I am a Corporal. We went out together in front of his tent, I had lathered him, took him by the nose, and was just about applying the razor, when a cannon ball came, and that was the last I saw of his head and of my hand. Excuse me, doctor, for laughing so; I never saw such a thing before." This occurred during the siege of Fort Erie.

Out of barracks it is common for messes of soldiers to cook at fire places made of two banks of turf, crossing at right angles like the ridges of the occipital bone. When not on parade, these places are the resort of groups of soldiers. On an occasion of the kind, one of the soldiers, standing on one foot, a cannon ball struck him on the head, and in doing so gave a whirl to the whole body upon the leg as he stood; the other leg flew out, as the headless trunk turned, and it upset a camp kettle of soup in the process of cooking. The soldier to whom it belonged was quite indignant at the loss, (provisions were then very scarce at the Fort,) and in his wrath he ejaculated, "could you not have lost your head without kicking over my soup?"

A patient who had lost his entire scalp to a level with the top of his ears, was the subject of unmitigated jeers by his comrades. Owing to the profusion of the suppuration, he was brought out daily upon the parade in front of the hospital tent, to have his wound washed and dressed. As there was some degree of regularity in the hour, it constantly attracted a circle of the more lightly wounded. It appeared that he had met with his accident from dropping behind to pick his flint, as he said, but it occurred as his regiment was moving forward into action, and the belief was that his motive was to save himself, instead of improving his flint. A party of hostile Indians on scout in the rear of the regiment, rushed upon him, he was felled with the butt of a tomahawk, and his scalp immediately stripped off in a large circular cut. He would after this have got the *coup de grace* from the edge of the tomahawk, but he feigned death; at this critical moment a scouting party of Americans fired upon the band of Indians, and they scampered away.

The battle being over, the wounded of the regiment were surprised to find their comrade alive, as he was considered a victim to the Indians. But the whole affair being now understood, it was a constant subject of merriment as his denuded cranium was exposed for the surgical dressing. One would ask him who cut his hair; another, how long it took; another declared that if the Indians were such close cutters, they should never touch his hair. And so it went on from mouth to mouth, each soldier trying his ingenuity at a question, as to what the wounded man had said on the occasion, how he managed it, and what the Indians said.

The crowd of wounded brought in by the field of Bridgewater reduced unavoidably attentions to individuals. The most possible was done, but it did not come up to the point. Under these circumstances many soldiers were treated in the outskirts of the hospital, by their wives or females having an attachment to them. With such assiduities, recoveries took place which would scarcely have followed in the ordinary hospital practice. A boy shot in the forehead, with the ball penetrating to the back of the neck along the base of the face, whom I had seen on his first arrival and dressed, and given up for a fatal case, I was pleasantly surprised some weeks after in finding in a state of convalescence. A soldier, shot through the lungs badly, was saved in the same way. So much for assiduous nursing, congenial food, cleanliness and good poultices.

(To be continued.)

---

*A History of the Epidemic Cholera, which prevailed, during the summer of 1852, at Chambersburg, Pa.* By A. H. SENSENY, M. D.

It is proposed, in the present communication, to give a brief history of the *epidemic* which prevailed in Chambersburg and its vicinity from the 15th of July, 1852, until the 31st of October of the same year. The unusual length of time the disease prevailed, and its extreme virulence of character, seem to demand that all the facts connected with its visitation and prevalence be placed upon record, and to justify the present undertaking.

Cholera, as an epidemic, or in a sporadic form, has made its appearance so frequently and so extensively in many parts of our country, that almost every physician of any experience is more or less acquainted with its nature; but as a great difference of opinion exists among physicians as to the predisposing cause of the disease, and the manner in which it is transmitted from place to place, together with other particulars connected with its appearance in one spot in preference to another, a few preliminary observations may not be deemed irrelevant or improper.

THE  
MEDICAL EXAMINER,  
AND  
RECORD OF MEDICAL SCIENCE.

NEW SERIES.—NO. XCVII.—JANUARY, 1853.

---

ORIGINAL COMMUNICATIONS.

---

*Surgical Sketches.* By W. E. HORNER, M. D., Prof. of Anatomy in the University of Pennsylvania, Senior Surgeon at the St. Joseph's Hospital, &c. &c.

*A Military Hospital at Buffalo, New York, in the year 1814.*

(Continued.)

The following general results came within my experience:

1. Buckshot wounds seldom did much harm, vital parts excepted. Those that I saw were principally on the persons of prisoners of war. They approach so near a simple laceration without contusion, that they soon get well. I have now one sticking very tranquilly in an os femoris, as if it had grown there. They are, I understand, peculiar to the American service. They give a more barbarous character to warfare, and probably without an equivalent advantage. This, however, I submit to the decision of military men. The English officers took that view of them, and considered them simply as mangling unnecessarily, but interfering with the effectiveness of the principal ball. Their momentum is too weak to penetrate far; really vital parts are

well covered and make but a small portion of the entire area of the body. It would, perhaps, be better for our national credit to discontinue such missiles, at least in war with civilized nations. The only recommendation that I ever heard of them was, that as they inflict a wound, the character of which is of course unknown to its recipient, he retires from the field of battle. They are therefore advantageous simply in multiplying wounds, though the latter may not be serious. If their use be a real advantage in gunnery, they can be thrown by one party as well as by the other, so that things are thus equalized. I have understood that their use at present is not so indiscriminate as formerly, and that they are resorted to principally in close contest.

Should they open articular cavities, then the mischief is of course considerable. Col. Miller of the U. S. Army, in an expedition to Long Point, opposite Fort Erie, had his knee joint perforated in that way, and inflammation and suppuration followed; he finally, after a long treatment, submitted to amputation, but without benefit, as he died shortly after.

2. Bullet wounds which did no injury to the bones, or to the great cavities, generally did well; a slight inflammation and stiffness followed, which went off in a few days. Our most common dressing in these cases, was basilicon, simple cerate, or tallow; poultices or discutients were seldom absolutely indicated. The wound was cleaned by the efforts of nature, in eight, ten or twelve days, it being succeeded by a copious discharge of pus, which gradually diminishing, the wound healed.

3. When the large cylindrical bones were broken, our resort was, for the most part, amputation; we had but few cases, the result of which encouraged us to attempt the saving of others. Out of many cases of fractured os humeri and os femoris which I saw, a majority of the patients died, or were compelled to submit finally to amputation; there being but few instances of perfect recovery from such accidents. The latter circumstance was partly attributable to the largeness of the English musket balls, which almost always produced an extensively comminuted fracture when they struck a hard bone. Amongst the instances of recovery, where the thigh bone was broken, was that of Lieutenant-Colonel M'Neil of the 11th Infantry, and Captain Cilley of the same regiment, and a few privates of other corps.

Col. McNeil was wounded at Bridgewater by a ball which passed



through the thigh, somewhat above the patella, and under the tendon of the extensor muscles, breaking in its course some portion of the condyles of the os femoris. The contusion was great. Much inflammation and suppuration followed, but he finally recovered with a joint somewhat stiff. He was a man of vigorous, healthy constitution, and stood more than six feet in height. The probability is that the synovial cavity was not opened; he was attended by another surgeon.

Captain Cilley had his thigh comminuted near the middle by a ball; his attending Surgeon, Dr. Trowbridge,\* made four incisions into the thigh, so as to afford room for the discharge of the fragments; they were passed out in a few weeks of inflammation and suppuration, which extended but little beyond the immediate region of injury. A rapid recovery with a useful leg followed, though the length of the latter was reduced three inches.

In the cases of recovery which came under my observation, the thigh bone was broken somewhere in its lower half; this fact corresponds with the testimony of those surgeons who have had the greatest experience in gun shot wounds.† A short time after a gun shot fracture of a large bone, the limb became highly inflamed, and swollen to twice its natural size; sinuses, which opened into the wound, were the almost invariable consequences of this inflammation; after they had existed for a time, the patient's health was destroyed; he became afflicted with diarrhœa and hectic fever, which were very frequently fatal.

4. During the heat of the summer our large amputations were very unsuccessful, so much so, as almost to discourage us from performing them; many of the recent stumps mortified; in others that did not, the patient gradually sank into the arms of death. In the latter, I observed that there was great retraction of the muscles, and frequently the periosteum separated from the bone, for a considerable distance up. Mortification of the extremities from gun-shot wounds, was very common at this period; a variety of tonic and other means were adopted to arrest its progress, and amongst the latter amputation; ‡ nothing succeeded.

\*Boston Med. and Surg. Jour. 1838, p. 341.

†See Thomson's Reports of Military Observations in Belgium.

‡See Larrey, (Memoirs of Military Surgery,) who recommends this practice.

5. Wounds attended with much discharge were frequently infested with maggots, the ova of which were deposited by flies (*Musca carnaria*) in the bed-clothes and dressings. This accident will probably be attributed to negligence, but the most diligent attention from nurses could not prevent it. It was a most serious evil, and frequently involved the life of the patient from the irritation produced.\*

It was marvellous to see how deeply these animalcules would work their way into wounds, producing, in some instances, as complete a dissection of the muscles, as if it had been performed by the knife. I learned on this occasion from a common soldier that the expressed juice of the Elder Bark, (*Sambucus nigra*), sprinkled on the dressings and bed of the patient, would keep the flies away; and on trial I found it to be so. The suggestion was made in the case of a gallant artilleryman from Virginia, John Horton, in Captain Ritchie's company, and who had suffered the loss of both legs from a cannon shot, followed by amputation. The interest felt in him induced me to place a special nurse to prevent the approach of flies. He was saved from the latter accident, but died in a few days, from his wounds.

6. I saw a few cases of wounds, through the large joints. They were more painful than any other wounds, the patient suffering excruciating torture for several weeks. Some healed by ankylosis, but we most frequently had in the end to amputate, or to lose the patient, in consequence of sinuses and hectic fever. Sometimes a low delirium took place, particularly in gun-shot wounds of the knee joint, in which the patient died in a few days after the injury. Wounds through the ankle joint were not attended with so much danger.

7. Gun shot wounds of the brain were in some instances very slow in being fatal. John Price, a private of the 1st regiment of Infantry, was wounded at Bridgewater, on the 25th of July 1814; the ball penetrated, transversely, the forehead, passed through the brain above the ventricles, and fractured the opposite part of the cranium; he died on the 2d of September following, five weeks after the injury. Several other examples occurred, in which the substance of the brain was wounded by balls and by tomahawks,

\*An analogous fact is quoted from Alanson, by J. Bell.

when the patients continued to live for many days; but I saw no instance of final recovery from such accident.

8. Several persons recovered who were shot through the throat, in such a manner as to endanger the carotid arteries and the important nerves. Amongst them were Brigadier, afterwards Major General Ripley,\* and Lieutenant, afterwards Major M'Intosh,† of the Rifle Corps. Both these officers lost the use of their upper extremities for a long time, and suffered exquisite pain in them. The latter discharged the ball, per anum, several months after he had been wounded.

9. Several recoveries from wounds through the thorax took place. Amongst them were Lieutenant Colonel Trimble, afterwards in the United States Senate from Ohio; and an Ensign of the 19th infantry. Bleeding to a very great extent, was used in all these cases. Lieut. Col. Trimble received a ball near the junction of the fifth costal cartilage with the sternum; the ball penetrated the lung and emerged from the back near the angle of the fifth rib. The hemorrhage from the lung by the mouth was most copious, and at each expiration blood poured freely from the external wounds, which of course implied a large collection of it in the pleura. Dyspnœa, feeble pulse, and cold extremities, left him apparently but little chance of life, but on the fifth day the symptoms mitigated. He was bled in the subsequent twenty-two days, six times by his attending surgeon, Dr. Amos Trowbridge,‡ and finally recovered. While a member of the Senate of the United States, he died at Washington in 1822, from a pulmonary affection, brought on by exposure in the preceding season.

10. Wounds of the abdomen, and its contents, were, in several instances, recovered from; amongst such were Lieutenant Cisa, of the 19th infantry, and a Sergeant White. In the first, the ball entered in the anterior part of his belly, below the navel, and

\*Case reported in the New York Medico-Chirurgical Journal, by his attending Surgeon, Dr. Allen.

†Case reported in the Eclectic Repertory, by Dr. W. H. Henning, of the Rifle Corps. Lieutenant M'Intosh was at different times under the care of us both. He lived for many years afterwards and was with distinction engaged, I believe, in both the Indian war in Florida, and in the late Mexican War.

‡For details, see Bost. Med. and Surg. Jour. for 1838, p. 344.

came out near the spine; about six weeks afterwards a button was discharged from the wound, near the spine, which had been carried in along with the ball.

Sergeant White's belly was penetrated by a ball, which also took in some fragments off the breech of his musket. The fragments were afterwards discharged at the orifice of the wound, during a free suppuration of it.

11. A case terminated happily where the ball had entered above the symphysis pubis, and came out posteriorly; the fundus of the bladder was penetrated; for several weeks there was a constant dripping of urine from the anterior wound; it at length ceased to flow in this direction, and came in the natural way.

12. In four cases of wounds of the spine, they all had pretty much the same symptoms; being attended with loss of sensibility and motion in all the parts below the injury.

For the first few days the patients were unconscious of their danger, the strength and activity of the upper extremities and parts of the body; and the quickness of intellectual operations, being very encouraging. It was necessary to introduce the catheter twice a day, or more often, in these cases; and to expel the contents of the bladder by pressing above the symphysis pubis. Purgatives were also necessary. In all these cases mortification took place on the sacrum, in consequence of pressure. A great irritability of the stomach occurred in each, a few days before death.

So far as I remember, in those and other similar cases, hiccup has always attended, and also delirium, before the final scene.

13. In amputations of the leg, to get the flap from the integuments, on its posterior part, was decidedly advantageous, in some respects, regarding the healing of the stump. If, instead of this, a circular flap was made, the part of it covering the sharp edge of the tibia was most generally ulcerated through, and the ulcer remained exceedingly painful and absolutely incurable, till the absorbents rounded off the tibia. This disadvantage was very striking with the circular flap adjusted transversely instead of vertically, *i. e.* antero-posteriorly. The flap extending from behind is, however, apt to separate, or rather not to attach itself

to the muscles; and, in such case, when suppuration came on, it retained the matter, and sometimes ulcerated through. My subsequent experience has led me now to prefer the circular cut with the vertical adjustment, and a bevel cut upon the spine of the tibia saves the absorbents a long work in rounding it off.

I saw an attempt to make a flap of the gastrocnemius and solæus muscles, on the principle recommended by Mr. Hey and others. It succeeded badly, the flap became very much inflamed and swollen, left entirely the surface of the stump, and could not be brought back; it gave the limb the appearance of a club. After a variety of means was fruitlessly tried to bring about cicatrization, a second amputation became necessary in order to save the patient's life.

A similar attempt on my own part since, in the Philadelphia Alms-House hospital, though not attended with such bad consequences, was very unsatisfactory, from the difficulty in making the flap unite.

Two amputations of the inferior extremities, a thigh and a leg, were performed by an inexpert surgeon, in which no flap was left; the patients recovered, however, after a very long confinement. The stumps became conical from the retraction of the muscles, and a second sawing of the bones was requisite to the cure.

Two amputations at a delayed period, that is when inflammation had set in, were performed. The suffering of the patients was much beyond the ordinary agony. The quickly fatal results proved the necessity of attending well to the rule, that such operations are never to be performed for severe projectile wounds, except in a few hours after their reception; or after several weeks have elapsed, and the symptoms of inflammation are entirely gone.

Soldiers are much disposed to repress the expression of pain, considering it unmanly. When this natural mode of easing the circulation of the lungs by groans and expiration was withheld, which can only be done by holding the breath, I came to the conclusion that it was highly disadvantageous to the individual. Chewing a bullet is a resort which should also be discountenanced. The introduction of ether since that period, will now make these cautions less necessary. The amount of pain excited in different persons varies very much. I assisted at an amputation of the leg of a soldier who was smoking tranquilly during the whole operation, his ease not seeming to be an affectation.

I did not see a case of recovery where amputation had been performed on both legs, or on both thighs, in one subject; but I saw a few recoveries *where* a leg and an arm, or two arms had been resected. Several double accidents of this kind happened during the siege of Fort Erie. In one instance, a cannon ball entered a hospital, and ranged along the feet of a row of beds, carrying away several legs in its course. In another instance, a young rifleman, of eighteen, belonging to Captain Irvine's company, had both arms taken off above the elbow joint, by a cannon shot. The ball being nearly spent, he then started in pursuit of it, not appalled by what had happened, but continuing to kick it as an enemy until its motion gradually subsided. His gallantry and coolness on this occasion, procured him the notice of several distinguished officers. I saw one case of recovery from amputation at the shoulder joint. This operation was performed by Dr. Gales, of the 23d infantry, whose services and intrepidity gained a high distinction.

14. Some cures, from extensively lacerated wounds, took place; amongst them, J. King, a private in Captain Biddle's company of artillery. He had the whole posterior part of his thigh, from the buttock to the ham, torn up by the fragment of a shell, and the muscles laid bare, as in a dissection. This extensive wound, in which there was a great loss of integuments, cicatrized, and got nearly well in three or four months. A private in the Infantry already alluded to, was scalped in a circular line, just above the tips of his ears. Granulations arose from the exposed surface of bone and pericranium, in a few days, and cicatrized very kindly; the discharge of pus was, for a long time, very considerable.

15. In one case I succeeded in a very rapid cure of fistula, in the lower extremity, produced by fracture in the lower part of the tibia. An intense and extensive inflammation of the whole limb followed the injury; this was succeeded by the deposition of matter all up the leg, and extending even above the knee. When the suppuration was pretty well established, by pressing carefully the matter from the sinuses for two or three days, so as to empty them completely, I succeeded in obtaining a radical cure, by placing compresses on the course of the sinuses, and securing them by a tight roller applied from the foot to the groin. The fracture did very well.

This manner of treating inflammation of the extremities, has since been very fully elucidated by the celebrated French Surgeon, Velpeau, in his writings upon the principle of what he calls systematic compresses.

16. I treated two cases of traumatic tetanus; the one was produced by a gun-shot wound through the pectoralis major muscle; the other by the same kind of wound through the sole of the foot. The first was managed with large quantities of laudanum; the patient died. The second was treated with laudanum also; and according to the plan proposed and adopted by Larrey, the surface of the wound was cauterized with a red-hot iron. A temporary remission was produced in the spasm, but it returned, and the patient died the day after the application.

Such were the general observations resulting from the surgical occurrences which came under my personal notice.

As in most active campaigns, the duties of the surgeon were too urgent to allow time for the taking of very complete notes on cases. Hence, general recollections have to be substituted, to a large extent, instead of precise tabular statements. At this period of time, when the actors of that day have so generally passed off the stage, it is a matter of sincere regret to me that so little has been published by others; and from recent enquiries at the War Department, it appears that no reports are there to supply this deplorable defect. It is to be hoped that the few medical survivors of this remarkable campaign may yet be stimulated to give in their full experience by publications, or at any rate make a deposit of it in manuscript at the Medical Bureau of the Army. How precious would such details of the American Revolution be; yet there are few or none.

The following account of the diseases and weather will probably be read with interest:

*\* Report of Hospital Surgeon LOVELL, of the state of diseases among the Troops on the Niagara Frontier, during the Campaign of 1814.*

"The troops engaged in this brilliant campaign on the Niagara, began to collect there about the beginning of April, under the command of General Scott. They were encamped on an eminence north of Buffalo

• From Medical Sketches of the Campaigns of 1812, '13, 14, by Jas. Mann, M. D., Hospital Surgeon, &c. Pp. 160 et seq. Dedham, 1816.

village, having a thick wood in front, which extended to the bank of the river, the ground being in part swampy and wet. On the left of the encampment was a large marsh, extending from the high ground to the margin of the lake. The winds from the lake, at this season, were remarkably cold and chilling; resembling, in sensation, exactly the east winds which prevail on the Atlantic during the spring; and had an astonishing effect upon vegetation. The trees around the encampment having the appearance of winter, while those five or six miles from the lake shore, were covered with verdure. Notwithstanding this, the troops were remarkably healthy; only one or two deaths occurring before they crossed the Niagara, on the 3d of July—even the demon diarrhœa appeared to have been exorcised by the mystical power of strict discipline and rigid police.

In June a number of new recruits joined the army; and several were collected from the various hospitals; the latter principally composed of the miserable refuse of society, who never had energy enough to demonstrate that they lived, and scarcely enough to prove that they existed. With these last detachments, arrived our old acquaintances, which, however, were easily checked; and much seldomer returned, than in any former campaign. This was undoubtedly to be attributed to the improvement in police.

During June, the weather became very warm, and a thick fog arose from the marsh and woods at sunset, and remained for some time after sunrise. During this month, intermittent fever, acute rheumatism, and typhus fever were the prevailing complaints. The intermittents were very irregular and obstinate. Arsenic, which was the sovereign remedy the last year, on this frontier, had now very little effect; while the bark, which then failed, was now generally successful. Some obstinate cases, in which every thing else had failed, were cured by the sulphate of copper. Three patients, who had tried most of the remedies with which we were supplied, without effect, cured themselves at once, by taking a pint of brandy undiluted, in which was mixed a large quantity of ground black pepper, on the accession of the cold stage. This was not followed by inebriation nor any appearance of undue excitement. It led me to use opium in much larger quantities than I had been accustomed. It was begun with four or five grains at a dose, and increased until some stimulating effects were produced, or the disease cured. The success of this prescription was very great during the whole season. In fine, of the remedies used this season, emetics had but little effect, even at first; and the mineral solution scarcely any—bark succeeded in the majority of cases; and opium very seldom failed. A few obstinate cases were checked for several periods, by the application of tourniquets to one leg and one arm; the disease however recurred; the tourniquets then had no effect; but remedies, which had before failed, now succeeded, after the interruption thus produced in the morbid associations.

Rheumatism, during the whole war, generally put on a remitting form; this was particularly obvious whenever intermittent fever prevailed, and more especially this season. Bleeding was but seldom necessary; after a brisk cathartic, bark was given in the quantity of from four to eight drachms during the remission, and a large dose of



opium on the accession of the fever; and always in sufficient quantity to relieve the pain. This treatment was very generally successful. I was induced to try it, in many cases, where the remissions were very slight, and generally effected a cure. In these, however, bleeding or purging were premised, which produced more perfect remissions. In short, I considered the bark and opium the remedies for rheumatism, particularly when intermittents prevailed, and for the most part succeeded.

Many of the cases of typhus, about the end of May, were remarkably severe. The most prominent symptoms were great prostration of strength, and delirium; of the species not attended with symptoms of great arterial action in the head, local applications as usual having no effect upon it. Symptoms of recovery were not observed in these cases, until the end of the third week. The treatment adopted was strictly that of Fordyce, and recovery took place in every instance.

On the first of August, a general hospital was established at Williamsville, eleven miles east from Buffalo. The number of sick, during the remainder of the season, at this place, varied from 3 to 400; the number of wounded being somewhat greater.

The troops suffered much during the siege of Fort Erie; and soon after it was raised, the rainy season commenced. Dysentery and diarrhœa were the principal diseases. I became fully convinced, after a fair trial of every medicine to be obtained at this place, of the decided advantage of ipecacuanha in various forms and doses, to any other remedy. The remarkable effects of this medicine, which Fordyce considers as acting specifically in typhus fever, led to the conclusion, that the febrile symptoms attending the latter stages of diarrhœa were in fact a true typhus, supervening upon the former complaint. Hasty in his treatise on dysentery, he speaks of several complaints, which are often combined with typhus fever; and are then generally contagious; and I had observed that the nurses of the wards, where diarrhœa prevailed, were often attacked with typhus, accompanied with diarrhœa, or a great tendency to it. Decided benefit had often been observed from small doses of ipecacuanha, with mucilaginous drinks, in an irritable state of the stomach and bowels, which appeared to be owing to a degree of inflammation extending through the mucous coats; and not attended with febrile symptoms; and it is probable that the good effects of the remedy, in the cases now referred to, were in some measure to be attributed to this mode of operation. Intermittent fevers and rheumatism prevailed during the whole season, and varied but little from the cases in May and June. The cases of typhus among the regular troops were generally mild.

About the end of September, a large detachment of militia crossed the Niagara, under General P. B. Porter. Diarrhœa, typhus and idiopathic dysentery very soon made their appearance among them; the two latter were extremely severe. As these patients were not sent to the general hospital, until they had been sick for some time, I saw only the latter stages of these complaints. The dysentery was at this period very obstinate; the bloody discharges and tenesmus incessant, and the prostration of strength as usual most dangerous. In this state, relief was very generally obtained from injections of a decoction of ipecacu-

anha, sometimes combined with laudanum; at others, the irritability was first reduced by an injection of laudanum alone. The decoction was often rejected immediately; it had, however, some effect even then, so that by repeating it several times, it would finally remain, and give relief. Blisters to the abdomen often had a very good effect; but no application to the part appeared generally to prove so beneficial, as a poultice of slippery-elm bark to the whole abdomen, often repeated. It relieved the tenesmus, and produced a gentle diaphoresis, which was promoted by warm mucilaginous drinks, a mixture of tinct. opii. and tinct. ipecac. This was the only treatment found beneficial in the latter stages of this complaint, and it very generally succeeded. Typhus, among the militia, was very severe. Patients were seldom sent to the general hospital, until the third week of the fever; and the treatment had been different, as the whims of the attending surgeons. The most usual practice, however, among them, was to blister the patient almost from the crown of his head to the soles of his feet; so that the chief difficulty was to remove the irritative fever induced by this *empirical, slovenly* practice. In some, calomel had been employed, but generally without any obvious effect, except increasing the danger of the patient. At this stage of the complaint, and under these circumstances, no general method of treatment could be adopted, except remedying the mischief which had been done. The cure was principally attempted by removing every cause of irritation, as appeared most urgent, and trusting to nursing and nourishment. Under this plan many appeared to be in a fair way of recovery; but in the course of the fourth week, a small circumscribed spot of inflammation showed itself in the face, generally, near the angle of the mouth. In a few days the whole side of the face swelled; this tumor was hard and pale, resembling the color of a white swelling of the joints. It was not in the seat of the parotid gland, but anterior to the branch of the lower jaw, and was attended with a most profuse and fetid salivation, apparently from irritation communicated along the salivary duct, as the liver and gall-bladder are excited by the chyme. In a few days more the red spot began to assume a livid appearance, and symptoms of incipient mortification. In a short time, the mouth was literally extended from ear to ear, exposing the backmost grinders on both sides. All the remedies usually employed in this species of disease, were employed without visible benefit. The only article which appeared to produce any good effect was charcoal, which, however, seemed only to prolong the sufferings of the patients. Three attacked with this affection had severally so far recovered as to have a good appetite, and sit up a great part of the day. Their strength and appetite held out surprisingly, after mortification had taken place. I have since seen two instances among citizens; one in Boston, on a young boy. He had so far recovered as to sit up; he took nourishment with a good appetite, and every symptom of fever had disappeared; when, about the middle of the fourth week, the swelling, salivation and mortification took place, and shortly he sunk. It should be added, that in the majority of these cases not a particle of mercury had been used in any form.\*

\*The same disease was observed by Surgeon Purcell in the Military Hospital, Burlington, Vt., in the autumn of 1814. See Mann, loc. cit., p. 164.

Several interesting cases of wounds occurred in our hospital after the battle of Chippewa; many operations were performed by the regimental surgeons on the field of battle, but a majority of them were left for the hospital staff. I shall relate a few cases, with the success attending their treatment.

CASE 1.—A private in the 11th regiment of infantry, received a wound from a grape shot in the right breast, between the nipple and sternum; the ball passed under the sternum, obliquely downwards, and emerged about four inches from the sternum on the left side, beneath the edge of the pectoralis major. The first time I saw this patient was on the third day after the reception of the injury; he said he had bled a great deal, and his clothes still showed the marks of considerable hemorrhage. I presumed that the internal mammary artery was cut or ruptured; however, as the wound had ceased to bleed before I saw him, the condition of the artery did not excite much attention.

The patient's pulse was feeble and quick, and he complained of great stiffness in his breast; his breathing was regular but hurried; I prescribed a light diet for him, and applied the common adhesive plaster to his wound on each side. I was much struck with the circumstances of this case, for the ball had passed between the sternum and mediastinum without producing a solution of continuity in either, which, had it injured the latter, would have been known by the state of respiration. I went to visit him on the fourth day, having obtained the advice and assistance of Dr. Thomas, hospital surgeon. The patient's pulse had become full, he had a slight cough, and complained of wandering pains in his breast, superadded to those occasioned by the wound. The depleting plan was here evidently indicated. I bled him to the amount of sixteen ounces, and dressed the wound as usual; in the afternoon I bled him again, as the symptoms had not been mitigated. By bleeding four or five times more, once a day, or on alternate days, the inflammatory symptoms were thoroughly subdued, and he no longer complained of his breast, except in the wounded part.

About the tenth or twelfth day the suppuration was so profuse as to require three or four dressings in the twenty-four hours.

His appetite finally returned, and his excretions were regularly performed; he was, however, from being a robust man, much reduced. As the suppuration diminished, the granulations sprung up; in about fifty days the cicatrix was completed, and his health, in a considerable degree, restored.

CASE 2.—Sergeant Smith, of the 11th infantry, was wounded the 5th of July, in the breast, by a musket ball. The ball entered on the left side, between the sixth and seventh ribs, and came out near the spine on the same side. I saw him on the third day after the injury. He then labored under oppression of breathing, and his muscular strength was much prostrated. The sides of the wound were tumefied and inflamed; I, therefore, could not make a satisfactory examination of the direction of the ball. I supposed, however, from his anxious and hurried breathing, that the lungs were wounded. I bled him to the amount of a pint, and dressed his wounds with yellow basilicon. On the fourth day I bled him again; this bleeding seemed to relieve him much. I enjoined on him the strictest antiphlogistic diet that the nature of our hospital stores admitted of.

By some new arrangement in the wards of the hospital, he was left out of my list, and transferred to my assistant, Dr. Coltrin; I therefore did not see him again for eight or ten days. At that time the wounds in his side were discharging matter very profusely, and a few granulations had risen up.

Air was inhaled and exhaled through the wound in the fore part of his breast, but not through the posterior wound. He believed himself to have been struck by two balls at the same time; if this be the fact, it will account sufficiently for the air rushing only through the anterior wound. About the last of August I saw him again; he was then emaciated almost to a skeleton, and had a harassing cough, with purulent expectoration, which threatened to terminate his existence in a few days. He continued in this unpromising way for several weeks longer; the wound in the fore part of the chest healed up, but that in the back continued running. His wounds, during this period, had been dressed with yellow basilicon or cerate, and his cough palliated by demulcents. The cough left him about the first of November, but his extreme emaciation and weakness continued

From this time he began to recruit a little, and in fair weather sometimes ventured out of his apartment. We now entertained hopes of his recovery. About the first of December, the wound in his back discharged but little, and was nearly healed. He was suddenly seized with lancinating pains near the wound, and spasms of the intercostal muscles and diaphragm, which sometimes suspended his respiration for a minute or more. Our hopes now vanished, and the attendants were frequently in the act of laying him out for dead.

Dr. Coltrin and myself visited him in concert. On examining the wound in his back, I perceived an obscure fluctuation near it. Having made an incision with my lancet, a few spoonfuls of healthy pus were discharged, and relief obtained for the time. He was ordered to take twenty drops of tinct. thebaic. at night. The next day, a small spiculum of bone was taken out. The spasm and pain now left him, and he recruited again. The wound in his back healed in about ten days, and he had a second return of this affection, as alarming as the first; a similar treatment was pursued, which relieved him. On the 24th of December, he was sent to the general hospital, at Williamsville, in a convalescent state, having had no subsequent return of his paroxysm, and bidding fair to recover entirely.

CASE 3.—A private, in the 9th infantry, had his radius broken about the middle, by a musket ball, which passed obliquely through the arm. He was admitted into the general hospital on the third day after the accident. The arm was then slightly tumefied and painful; only a common dressing, with splints, was applied to it. Between this time and the twenty-fifth day, frequent hemorrhages had occurred, which were commonly suppressed by a compress of square pieces of muslin, confined with a roller. The arm had become greatly tumefied, probably to three times its natural size, and a copious suppuration had followed, which relieved the inflammation and pain, but the patient's health was much impaired by diarrhoea and hectic symptoms. Opium and bark having been tried in vain, to arrest the latter, it was determined, on the thirty-fifth day after the accident, to take off his arm. I amputated it just below the insertion of the deltoid muscle. On the fourth day afterwards, I undressed it,

and was much chagrined at finding that the adhesions of the flap to the muscles had been prevented by a number of maggots finding their way through the dressing into the stump, notwithstanding every precaution had been taken to prevent such an occurrence. I cleared them out by injecting warm water and spirits of turpentine. On the fifth day, a new brood had come in, and insinuated themselves into the interstices of the muscles, producing considerable pain and irritation. The muscles had retracted, and left the bone jutting out about an inch, completely denuded of its periosteum. A very slight suppuration occurred. The patient's health became worse; for, besides an aggravation of the aforementioned symptoms, a comatose condition was present. I sawed off the protuberant extremity of the bone, cleaned the wound with warm water, and ordered the tonic and stimulating treatment to be strictly pursued. Nothing seemed to relieve him, and on the tenth day after the operation, and the forty-fifth from the reception of the injury, he died.\*

CASE 4.—John McGulrick, aged 45, of a dark complexion, and full habit, a private in 100th British regiment, 4th company, was wounded and taken prisoner at Chippewa, on the 5th of July, 1814. On the 7th of the same month, he was brought to the general hospital at Buffalo, with the rest of the wounded of the two armies. On examination by the superintending surgeon, the thigh was discovered to be fractured by a musket ball, about six inches above the knee joint. The limb was much swelled, and extremely painful from the bandage applied in the first dressing being stiffened with blood, and too closely rolled. He was ordered to live on light food, have the limb frequently moistened with lead water, and secured with a bandage and splints. A dressing of cerat. simp. was used.

In consequence of the great number of wounded, the surgeons and mates of the general hospital were unable to attend to all the patients, and it became necessary to employ some of the neighboring practitioners. It fell to the lot of this man to be placed under the hands of one of them, and I did not see him again till about the middle of October; I am, therefore, unable

\* This case is inserted in order to show the effects of local irritation on a stump.

to say what treatment was pursued in the interim ; from circumstances, however, I am induced to believe it was not of the most judicious kind. About this period, the services of the aforesaid practitioner being no longer wanted, he was discharged, and the soldier placed under the care of my assistant, Dr. Coltrin. On visiting the patient, he was struck with the peculiarity and precariousness of his situation, and was sensible that the preceding surgeon had not done his duty. The case presented such difficulty that he requested assistance.

Oct. 16th. We visited the patient in concert, and found the following symptoms : He was reduced almost to a skeleton, there being little else but skin and cellular substance on his bones ; his pulse quick and feeble ; a wasting diarrhoea had been on him for several weeks ; he was subject to profuse sweats at night, and had no appetite. To these general symptoms was added a most unfortunate condition of the broken limb. The thigh was shortened about four inches, in consequence of the extremities of the broken bone being allowed to pass each other ; the orifices, where the ball had entered and made its exit, were still open, and discharged daily a large quantity of thin semi-transparent pus ; a fistula was found running nearly up to the trochanter minor, and a large ulcer had formed on the sacrum from continued lying in one position.

Weighing all these circumstances, we were not slow in pronouncing an approaching dissolution : had our opinion been otherwise, we should have determined immediately on amputation. There seemed so little chance for the patient's life, that nothing else could be done but to pursue vigorously the tonic plan ; this we did, more from a sense of duty than from hopes of success. He was ordered to take Peruv. bark four or five times a day, and also a pint of port wine.

*R.* Kino. gr. xv. To be taken three times a-day.

It was too late to think of restoring the limb by extension and counter-extension, as an adhesion had taken place between the bones, and an artificial joint had formed. We, therefore, only directed the limb to be dressed with basilicon twice a-day, the matter to be carefully pressed out of the sinus, and a spiral roller, with a compress on the fistula, to be applied from the

foot to the groin. The ulcer on the back was dressed also with basilicon.

This treatment was persevered in, with the addition of bitters, till the 1st of November, and with no amendment on the part of the patient; we, however, were pleased, and thought him fortunate in not dying.

The patient adhering to life with such tenacity, made us agitate the propriety of amputation, and we almost made up our minds for it, but as he was in the same precarious situation, it was thought advisable to wait a few days longer, as they would probably determine his fate, or produce an amendment.

Nov. 5th. The same treatment continued to this date; the patient no better, diarrhœa and hectic symptoms rather more urgent. As a dernier resort, we this day determined on amputation; everything was prepared, and the knife placed in the hands of Dr. —, hospital surgeon, who, not belonging to the hospital, as a mark of attention, had been invited to perform the operation. He was dissuaded from it by Dr. —, of the — infantry, also a visitor, who, forming his opinion from the present condition of the patient, without taking into consideration the preceding circumstances, denounced the operation as fatal to the patient, and involving the reputation of the surgeon; advising us, at the same time, to pursue the tonic treatment. But a full trial of that had been already made. I was myself inclined to believe, that the operation might probably be fatal immediately, or in a few hours afterwards: but as I considered it the only possible means of relief, and had maturely reflected on the advantages and disadvantages likely to result, it was with reluctance that I submitted to the opinions of the consulting surgeon for the present.

Dr. Coltrin and myself having both acquired confidence from seeing the happiest issue from amputations, under circumstances similar, but not so aggravated, determined, let the event be what it might, on performing the operation by ourselves, without consulting or letting it be known to any other surgeons; we accordingly proceeded to the operation on the

10th Nov. At this time the patient's strength was completely prostrated, the diarrhœa and hectic fever still continuing in all their force; the sores on the back and thighs were no better. The



limb was amputated about two inches below the trochanter minor ; the patient lost but little arterial blood, and bore the operation beyond our expectations. He was put to bed and ordered T. Opii, grt. xl.

Nov. 11th. The patient somewhat better, rested tolerably well last night, less troubled with the diarrhœa.

**R.** Pulv. Cort. Peruv. coch. min., still to be taken four times a day, and Elix. Vitriol, grt. xv., to be added to each dose. A pint of port wine a day continued. Allowed to eat anything he fancied, which could be procured.

Nov. 12th. Rather better, medicine continued.

Nov. 13th. The symptoms considerably ameliorated, appetite excited, had but one stool yesterday, and one last night, nocturnal sweats less profuse, rested well, medicine continued.

Nov. 14th. Mending perceptibly ; the first dressing was removed from the stump ; it had partially united by the first intention, and was beginning to suppurate finely. The ulcer on the sacrum throwing out healthy granulations, and diminishing in size.

Nov. 20th. The patient much in the same state as on the 14th, except that the powers of life were so feeble in the sound limb, that a dry gangrene came on the big toe, and the two adjacent toes, being probably induced by the cold state of the atmosphere.

The extremity was cold and without perceptible pulsation, from the toes to the knee. The nurse was ordered to wash it twice a day with hot brandy, and apply a flannel roller from the toes to the groin ; medicine continued.

Dec. 1st. The patient's health and strength considerably improved, appetite good. The dry gangrene still continued on the toes, without any effort of nature to separate the mortified parts ; the heat of the limb was restored after a few applications of the hot brandy ; pulsation perceptible in the anterior tibial artery. The stump and ulcer doing well, the latter nearly healed. We now considered the patient almost out of danger. Prescription of the 11th November continued.

Dec. 20th. The patient completely exempt from apparent danger, and convalescing rapidly. He had picked up a little flesh, his appetite good, diarrhœa and hectic symptoms entirely gone ; but one or two stools in the twenty-four hours ; the ulcer on the sacrum

healed, and the stump nearly so. Bark, Elix. Vitr. and wine continued.

Dec. 23d. The general hospital being broken up at Buffalo, this patient was sent, with others, to Williamsville, eleven miles off; no question of his recovery was then entertained, and the only unfavourable circumstance was the gangrene on his toes, which still continued, nature showing an indisposition to separate the living from the dead parts. He arrived at his journey's end without accident. The final conclusion of this case I have to be informed of, as I left the frontier the following day.\*

Gun-shot wounds having got their name originally from a superstition connected with them, that is of their being poisoned or placed under some peculiar influence from the material projecting the ball, they have been considered as forming a class to themselves, and a special treatment was introduced, now to a great extent abandoned. If the term itself were laid aside, and we had a class of wounds called Projectile, surgical phraseology would be improved by accommodating it to the sentiments now generally entertained. The mere instrument of projection in its own nature has no influence, further than its special force, upon the body projected. At the present day, when steam is so much employed in navigation and in machinery; from the frequency of accidents from its explosion, we might, upon the principle of the nomenclature adopted, have a class of steam-shot wounds, and formerly there could have been one of balister-shot wounds. It is probably the more requisite to have a reformed nomenclature in the present day, because really great modifications have been introduced into the manner of inflicting wounds. The injury from musket balls formerly occupied almost exclusively the mind. Now artillery is so much used in combat, that its grape and its cannister shot figure largely. The projection of hollow balls calculated to explode at certain points, and by their fragments produce destruction, has also advanced much in use. And lastly, the modes of injury connected with the industrial pursuits of society, (as the disruptive of

\* The amputated part of the os femoris is now in the Wistar Museum, and presents a striking example of the effort at union by callus thrown out laterally.

machinery, and the tearing and crushing of railroad cars,) stand much in the category of projectile wounds, though not exactly according to our pre-conceived idea of them. The whole of the preceding category belong in their phenomena to wounds resulting from laceration and contusion blended together. The entire train may indeed be said to commence with the buckshot used in the American service, and to end in the explosion of the radiating fragments of a bomb shell, or in the most extreme form of railroad accidents. The injury from the first is very insignificant, unless it touch a vital part, as the brain or a large vessel; while the injury from the two last, though falling upon parts easily spared from the system, yet come with such destructive violence, that the system is unable to rally from it, and hence death is most lamentably frequent, without our being able to point out any very intelligible cause. We call it, however, a *shock* to the system.

If it were in preceding times difficult to give a formula, which represented universally the progress of wounds from projectiles, (gun-shot,) and the exact mode of treatment, that difficulty it is seen by the above is much augmented, at the present day. The enquiry has therefore to be made conformably, and resolves itself as follows:

The circumstances of force and resistance, being the same in both instances, what are the phenomena attending the entry and exit, or lodgement of spherical shot or bodies, connected with the material forming the latter? What of angular bodies, made so by design or by explosion?

How is their passage modified by the various degrees and angles of resistance?

What are the most appropriate dressings in each case?

What are the different constitutional effects?

What are requisitions for amputation, and at what time after the injury should it be performed? This is perhaps the most important and pressing question of modern surgery; from the revolution, I say, which has taken place in the projectiles of modern warfare, and in the use of transporting and of manufacturing steam machinery. Its paramount interest is seen every day. Formerly a stump, either in arm or in leg, was one of the rarest of sights in our streets, and was sure to obtain attention from its infrequency; now it is so

common that we do not think of it in passing. A death after an amputation was formerly scarcely looked for except from the general condition of the patient at the time; now it is one of frequent occurrence. The question, therefore, has been most forcibly elicited, what are we to do with limbs extensively crushed and lacerated? Are they to be cut off before re-action—are they to be cut off upon re-action—are they to be left as we find them, and to await the sanative process of nature, which will cause to slough off a part whose life can no longer be retained? Or are we, in case of restoration being hopeless, to make a simple muscular resection of the part, at the point which is the most disjointed from the rest, and to leave the resection of the bone and its squaring off, for a future time? It is impossible for any one man to find in his own experience a solution for all these questions, but a collective attention of the profession from all quarters of the world, in making a simple report of each case, would enable us to see whether the existing rule of speedy amputation is to be observed; or whether a new state of things, by its greater frequency of occurrence, may not invite to another rule of practice, by affording a higher and a more discriminating experience.

In hopes of eliciting from other quarters their own experience, and by that means obtaining a total revision of the ground of surgery in its relation to wounds inflicted by projectiles, I shall now proceed to present my own observations and conclusions.

In regard to the lighter conditions of projectile wounds, the following phenomena and proceedings may be stated:

When a wound is first inflicted, say by a musket ball, because it is the most frequent cause of injury, a round hole is made, into which the surgeon can easily introduce his finger: in twelve or twenty-four hours an inflammation and tumefaction take place in the walls, or circumference of the wound, which close it up so completely, that a small probe cannot be introduced without force, and without giving a pain to the patient. I mention this latter, because theoretical writers on the subject talk of introducing their bullet forceps, and extracting a ball with the same facility as they would extract a ball from a large auger hole.

I saw at the period in question a pair of bullet forceps, from an instrument maker, for the army, who, no doubt, acted up to this

idea, nearly as large and long as a pair of small fire tongs, and which no experienced surgeon would ever think of employing on the living body. In a vast majority of cases, no instrument larger than the common dressing forceps could be used in extracting a ball: they answered every purpose to which instruments of this kind could be applied. They are long enough, and if any objection to them can be found, on trial, it will be invariably as to their bulk, which might, with great advantage, be diminished for this purpose. When I first began to dress gun-shot wounds, and extract balls, I laid hold of the common bullet forceps, and attempted to introduce them into the wound, in which I seldom succeeded, for two reasons; the first was, because it was impossible to do so, without dilating the wound with a scalpel; and the second, because few patients will allow the excessive aggravation of pain which their unwieldy size occasions. After unavailing efforts with them, till my own patience, and that of the patient, was exhausted, I commonly finished the business with the dressing forceps.

If any person will take the trouble to compare a pair of bullet forceps, of that period, with the bullets used in our service, he will find that the diameter of the extremity of the forceps is nearly equal to the diameter of the ball; so that, admitting it practicable to insert the forceps into the wound, and to pass them along its channel till the point reaches the ball, it will then be necessary to stretch the wound to twice its diameter before the blades of the forceps can be passed over the ball, and include it in their grasp; after which the whole length of the wound is to be stretched in the same manner, in extracting the ball, and that to the very great misery of the patient. The common dressing forceps are objectionable on this account, but less so than the others, because their points are tapering and thin, and, therefore, occupy less room; and as regards firmness of grasp, it is sufficient to extract a ball out of any soft part in the human frame.

To return to the progressive condition of wounds: the tumefaction and inflammation, of which I have before spoken, generally continue, with little variation, till the fourth or fifth day; from that time a secretion of pus takes place from the walls of the wound, which continues to increase for several days, and sometimes it becomes very profuse. This secretion of pus cleanses the wound, and

terminates the inflammation and tumefaction, commonly about the tenth or twelfth day. It is at this period that it is practicable to extract the ball, and pieces of clothing, which may not have been attended to at the first dressing; the wound has now a gaping orifice, and the dressing forceps may be introduced. If it be delayed much after this time, granulations rise up and close the orifice. We can then only trust to nature for expelling those foreign bodies, and it is seldom that she does not, sooner or later, bring them to the surface.

Major General Brown presented an instance of the injurious effects of portions of clothing remaining in wounds. At Bridgewater a musket ball entered somewhat in front of the trochanter major and passed out over the inguinal glands. He suffered for three weeks from inflammation and suppuration; became better, and leaving the southern shore of Lake Erie, was accommodated in an armed schooner off the Fort. He then relapsed, with great irritation and discharge of matter, which continued until a piece of woollen pantaloons carried in by the ball, was discharged. The wound then soon healed, he resumed the immediate command of the troops, and consummated his military reputation by directing the sortie of Sept. 19th.

Not an unusual point of discussion, is the comparative size of the place of entrance and of departure of a ball. It will be impossible to find a rule on this subject because the proposition is variable. If a ball pass through a part with a velocity not materially impaired, the hole for its exit will be the larger from its imperfect support in being made, but it will be found generally that the point of exit is a simple laceration, the edges of which come almost or exactly together. Cases of this kind are met with when the ball is so far expended in force that it does not penetrate the clothing a second time, but is caught by it and drops down into the boot or shoe.

The sloughing of wounds is described by many writers in such a manner as to produce the belief that the parts injured by the ball are separated from the living parts, and come out, in pretty much the same way as the lining would from the sleeve of a coat. I never saw this, or any thing like it; if a sloughing does take place, it is insensible, and so dissolved in pus, that nothing of it can be seen. Occasionally parts of the fascia and of the cellular substance are detached, but there is nothing like muscular flesh.

I should myself be more disposed to describe the process as a deliquescence of the contused parts, than a regular sloughing.

From the tenth or twelfth day, the secretion of pus gradually diminishes, granulations arise quickly, and the cicatrix commences from the circumference of the wound, contracts and advances to the centre; when it has nearly closed up, the further progress of the cicatrix is frequently checked, and it remains stationary for some time, in consequence of a small button-like fungus, which shoots up considerably above the surface of the wound. If this fungus is touched once or twice with lunar caustic, it disappears, and the wound is completely healed, generally between the 20th and 30th day. Gun-shot wounds seldom bleed much at first, or indeed at any period of their course.

I often had my fears excited by the accounts of secondary hemorrhage, proceeding from the sloughing process involving the large trunks of arteries. It is true, this event does take place sometimes, but I think it one of comparatively rare occurrence.

The discharge from a gun-shot wound is, for several days, of the most fetid and intolerable kind, and while the deadened flesh is coming away, this discharge is of a black color, mixed with yellow; it soils, very much, the dressings, and they cannot be washed clean without a great amount of labor. Owing to this we could scarcely keep a bandage in use for more than one dressing. But the expense of this profusion was very serious, from the scarcity of woven fabrics and the high price of cotton which had to be transported inland on wagons from South to North, in consequence of the strict blockade of the sea-coast. The existence of war precluded the introduction of supplies from abroad, through our sea-ports.

(To be continued.)

---

*Experimental Researches applied to Physiology and Pathology.*

By E. BROWN-SÉQUARD, M. D., of Paris.

(Continued.)

XXI.—ON MUSCULAR IRRITABILITY IN PARALYZED LIMBS, AND ITS SEMEIOLOGICAL VALUE.

Marshall Hall has published many papers, in which he has tried to prove that the degree of muscular irritability in paralyzed parts may be used as a means of diagnosis between *cerebral* and *spinal* paralysis.

THE  
MEDICAL EXAMINER,  
AND  
RECORD OF MEDICAL SCIENCE.

NEW SERIES.—NO. XCVIII.—FEBRUARY, 1853.

---

ORIGINAL COMMUNICATIONS.

---

*Surgical Sketches.* By W. E. HORNER, M. D., Prof. of Anatomy in the University of Pennsylvania, Senior Surgeon at the St. Joseph's Hospital, &c. &c.

*A Military Hospital at Buffalo, New York, in the year 1814.*

(Continued.)

In regard to wounds from grape and cannister shot, they are more torn, owing to the larger size of such projectiles. And from the greater momentum much more mischief is done in the laceration of the soft parts, and in the comminution of bones, than happens from musket balls. Such missiles pass straight on, and, except when the surface of the body or the limbs are concerned, they are for the most part immediately fatal, or in a short time. Musket balls, on the contrary, have their course very much varied by the material resistance they meet with in the different tissues and especially by the angle at which they strike. Hence it is not unusual for them to pass around a part one half of its circumference immediately under the skin, giving delusively the appearance of a wound through and through.

If the smaller spherical projectiles from cannon make terrible wounds, such of the latter as arise from the angular fragments of exploded hollow shot are still more formidable in the rent and destruction of parts, and there are still fewer recoveries from



them. Rail-way accidents and steam explosions produce a class of accidents very nearly allied to them.

I have said that in the lighter wounds, poultices were early dispensed with ; the inflammatory symptoms were mild, and subsided as the discharge of pus increased. The local treatment in common use, was the daily washing of the wounds with soap and warm water, and a simple plaster of basilicon spread on patent lint. We were, however, frequently in want of the latter, and its place was tolerably well supplied by slips of the cotton muslin which we used for bandages. When the sores showed an indisposition to heal, they were washed freely with French brandy or with whiskey. The poultice of bread and milk, of flaxseed, or of slippery elm, was resorted to with great advantage in soothing the irritability and extreme sensibility of some wounds. Situated, however, as we were, milk was a scarce article, and the bread of an inferior quality. The cold water dressing, since so much eulogized, was not attempted except in the form of saturnine lotions. Having been in Paris in the celebrated outbreak there in June 1848, and witnessed the cold water dressings in several of the Hospitals, I can not say that I considered it equal in comfort and in efficacy in severe cases to the preceding well established routine of warm poultices. It may retard inflammation and also repress it, and in these two lights may do well ; but another important indication in many wounds is to make provision for the tumefaction which follows them, and nothing relaxes rigid tissues with more certainty than hot fomentations and poultices. Any one who will try the experiment of treating a sprained ankle by cold applications alone, in contrast with large hot poultices, using in both cases leeching besides, will be convinced of the vastly superior efficacy of the poultice, and see that the treatment is abridged nearly one half in point of time by the use of the latter. On the occasion alluded to in Paris, it afforded me pleasure to perceive that the dressing of wounds in the wards of the Hotel Dieu, and of the Saint Louis, was still by the warm well made poultices, while the cold water fomentation or irrigation was almost exclusive in the Val de Grace, (a military hospital.) In the Neckar, the treatment was eclectic, some patients being dressed with cerate, spread on perforated linen, others with poultices, and others with cold water.

I have in a preceding place, alluded to the paramount interest attaching to amputations, and especially the period at which they should be performed. This question was for a long time considered as settled upon the authority of the leading surgeons of the French and of the British Armies, during the great wars at the beginning of the present century. They generally asserted their conviction in favor of amputation directly after an injury, instead of waiting for two, three or more weeks. The ancient doubts are now, however, beginning to revive, and the more recent statistics are received with no small attention.

The frequency of fatal results upon direct amputation leads to the inquiry necessarily, whether a severe operation upon the heels of a severe accident is not, however well performed, more injurious than beneficial to a patient, and whether, in view of preventing an ulterior harm, it does not produce an immediate mischief? Whether the true course in such cases would not be either to let the limb undergo the ordinary treatment of poultices, &c., or if the nourishment of it could not be kept up beyond the injured spot, to do no more than simply cut it off through the ray of connexion which it may have with the part above. In reproducing such ideas it is to be admitted that circumstances are to regulate, in a measure, the proceeding. When the patient can be placed at once in convenient quarters, the refraining from amputation has much to recommend it. But when he has to be transported roughly a great distance, the amputation of the thigh, or at least the immediate excision of the dangling part of the member, would probably be better than to leave all as the accident placed it. It appears to me that the leading inducement to many amputations immediately after injury is only the making of a better stump; but nature has great capacity in this respect, in the most unseemly injuries; and by her law if a bone protrudes beyond its limit of covering by muscle and skin, she in a few weeks, reduces its length to the proper mark by the process of exfoliation. This I have frequently seen accomplished when a spontaneous retraction of the muscles from the bone had denuded it.

Wiseman, surgeon to Charles II. of England, counselled that if there be no hopes of saving the member, the amputation should be done upon the receipt of the wound, before the patient's spirits

were overheated with pain or fever, his strength impaired by loss of sleep, and while he is still amazed, as it were, with the accident. Le Dran was of the same opinion, and especially in the case of wounded joints. Ranby, surgeon to George II. in the fore part of the last century, deriving his experience from the campaigns in Flanders, advised amputation on the spot, even on the field of battle. But the most prominent authority of the last century is Bilguers, Surgeon General to the Prussian Army under the great Frederick, who in 1762\* published against amputation in general. He denied its necessity even when a limb was torn off by a cannon ball and the parts were hanging. With these views he permitted no amputations in the Prussian Army. The exposition of his success is that, having at one time 6618 wounded patients in hospital, 5557 were perfectly cured, 195 almost restored, 213 remained incapable of either military or civil labor, and 653 died. The 195 and 213 had their bones broken, that is 408, and of the 653 deaths, 408 were from fractured bones. There stand 408 saved without amputation, and 408 deaths also without it. He then says that if we compare the number saved without amputation, with the almost total loss of patients after amputation (only one or two escaping) out of a prodigious number operated on in the beginning of the war, we may safely conclude that the 408 saved would have been victims to the operation. Exceptions are taken to this conclusion by Mr. Guthrie, because Bilguer makes no account of the wounded who died upon the field of battle for the want of amputation. There is, however, such an immense difference between only one or two saved in the beginning of the war, and 408 saved under a new regulation, that if Bilguer speaks candidly and correctly the assertion is of great weight.

About the middle of the past century, (1756) the French Academy of Surgery made this subject a prize question, which was decided in favor of M. Faure, a military surgeon of experience. He adduced ten cases of experiment on delayed amputation, following the battle of Fontenoy in 1745, all successful, while his opponents brought forward only four cures, out of nine immediate amputations. Faure's eligible period for amputation

\* See Guthrie on Gun-shot wounds.

was when the violence of the local inflammatory condition and the symptomatic fever had abated. He, however, permitted prompt amputation in some few cases, they being of the worst kind, and not admitting of any delay whatever. Faure informs us that of three hundred amputations upon the battle of Fontenoy, only thirty were successful.\*

In 1792 this decision of the French Academy was reiterated by the Baron Percy in his *Manuel du Chirurgien d'Armée*. The celebrated John Hunter, says on the subject,† after excepting cases where there is danger of death from hemorrhage, and the blood-vessel can not be reached without amputation, that it is much better to wait till the inflammation, and all its effects with those of irritation be gone. And this caution he applies with marked emphasis to the lower extremity. But few, he says, can support the loss of a lower extremity when they are in full health and vigor. "We know that a violent inflammation will in a few hours alter the healthy disposition, and give a turn to the constitution, especially if a considerable quantity of blood has been lost, which will most probably be the case when both accident and operation immediately succeed one another." He reprobates decidedly amputation on the field of battle,‡ the motive for which must of course be to avert the inflammation of the part which would follow its neglect; but he says, that if the patient would be able to sustain the inflammation, a consequence of the accident alone, it is more than probable he would not be able to support the amputation and its consequences too. If chances are so even for and against the patient when amputation is performed under ordinary circumstances in life, how adverse they become upon a field of battle." We must confess that we consider these pregnant precepts in regard to military surgery, but too applicable to the more pacific, but no less terrible series of injuries resulting from railroads, the actual extension of which at present in our country, and their still further extension for the future, urges imperiously a sound rule for the guidance of every practitioner.

\* See Larrey, *Memoirs of Milit. Surg. &c.*, Balt. Edit. 1814. Vol. 2, p. 79.

† *A Treatise on the Blood &c.*, p. 537, Phila. Edit. 1840,

‡ *Ib.* p. 538.

In an army, additional ease in travelling, and especially in a hostile country may be a motive for prompt amputation, but this can have only a limited influence in civil practice, and therefore ceases to be an argument. Mr. Hunter proceeds to say that few did well who had their limbs removed on the field of battle, while a much greater proportion have recovered upon amputation after the inflammation was over. He is, however, less scrupulous about prompt amputation of the upper extremity, or in any case when the limb holds by only a small connexion. My own doubts, I admit, extend even to the latter, and I sincerely desire that a proper test should be applied by experiments of a suitable kind. It can do but little harm when a limb is dangling, and with the bones comminuted, to resect the limb at the point of connexion, and then simply to square off the protuberant bone. By this forbearance, which is scarcely an amputation, we avoid a new invasion of parts already in a suffering state.

The introduction in the year 1782, by Mr. Alanson, of the plan of treating amputated limbs by procuring an immediate union of the flap with the stump, may be considered as giving the strongest impulse to the idea of prompt amputation after injury; it is said to have diminished considerably the mortality when compared with that of the preceding forty years. This is, however, a pure question of comparative treatment of amputation, in which the English and the French schools are still opposed. The intelligence and ardor of the latter do not admit of a doubt that they are governed in their own practice by the results or the convictions of experience, and not by a simple routine as is alleged by their insular Neighbors. But this question does not reach the fundamental one of the relative superiority of a prompt, or of a tardy, or of a delayed or remote operation, the great one for the present stage of civil surgery.

The instructed reader need scarcely be informed that English surgery has run exclusively into the practice of prompt amputation after an accident likely to produce final loss of limb; that the celebrated Baron Larrey has used his high influence in producing a similar practice in France; and that these two sources of authority have established the principle in American surgery. The opinions of our army surgeons in the war of

1812 all went that way, so far as we can learn, through the unfortunately too limited publications on that subject; and we presume that these opinions have been reproduced in the late Mexican war, though unhappily there are so few means of ascertaining the case. Notwithstanding this, we are yet constantly admonished by the frequency of death after immediate amputation, that if the practice be a sound one, it is at least very unsatisfactory in its general results.

Mr. Guthrie\* makes what he considers a triumphant statement in favor of his own views for immediate amputation; to-wit: in 163 amputations of the upper extremities, five only died, the rest were cured or convalescent; of the lower extremities, 128 amputations, only nineteen deaths, the rest cured and convalescent. His average of success was, in the case of the upper extremities, one death to twelve recoveries, and in the case of the lower extremities, one death to three recoveries. In the delayed amputations in the British Hospitals for the last six months of the year 1813, one hundred and sixteen persons out of 296 died in the case of the upper extremities; and in the case of the lower extremities 149 out of 255, a loss of more than a third in one category, and of much above one-half in the other. By this it appears that nearly one-half of the wounded are lost in the delayed amputations, while not more than a twelfth are lost on the field of battle.

Mr. Guthrie presents a remarkable statement of the mortality attending amputations between the fourth and the eighteenth day, mostly of the thigh. Out of forty-six, forty died. One who has seen amputations at this period of gun-shot wounds, will not forget the horrific yells of the sufferer; and we must confess some surprise at the persistence of a surgeon who would progress through such a scene. His confidence must have been strong in the accuracy of his principles, and his solace is to be found in the statement following, that an equal number, not so badly wounded, but not operated on, also died. This occurred in a group of one hundred and fifty French soldiers, captured at the battle of Salamanca.

\* On gun-shot wounds, p. 42. London, 1815.

† Loc cit. p. 59.

Mr. Hennen\* is so firmly of the opinion above, that he considers it almost libellous to impute any other practice to English surgeons. The fact of its propriety is, he says, as firmly established as any in surgery, and that there is not one point where opinions have varied so little among English practitioners from Wiseman downwards. The statistics of Mr. Guthrie and the axiom of Mr. Hennen, have thus a strong contrast with the celebrated Prussian surgeon Bilguers, and with the deeply reflective mind of John Hunter. It is said that the Indians of the Rocky Mountains consider a few perforations with rifle balls or penetrations with arrows, as not a very serious matter; that they suffer comparatively but little inconvenience from such accidents. If vital parts are not struck they do not lay up, but let these missiles drop out pretty much as they can. All of which is stated to be due to the singular salubrity of the air. The air of a field of battle appears to have a similar protective influence upon the constitution of the British soldier, or else there are some qualifications in the condition of things which statistical tables fail to represent. We can scarcely doubt the sincerity of Mr. Guthrie's views, whatever may be the striking character of his reports. He certainly had great opportunities for experience when war was conducted on so extensive a scale. But whatever may be his convictions in regard to early amputation, he is decided in allowing the first moments of agitation to pass before the operation is performed. He admits a period of from one to six or eight hours in different individuals, but considers that from one to three hours will, in most cases, be sufficient.†

The great battle of Waterloo, fought on the 16th and 18th of June, 1814, left two thousand killed in the British lines, and eight thousand wounded; the number of amputations amounted to nearly five hundred, in more than one-third of whom the operations had been prompt. We are informed by a careful observer, who made his report on the state of the British Hospitals‡ in Belgium at the time, that the mortality among those where am-

\* Observations, &c., on Military Surgery. Edinburgh, 1818, pp. 45, et seq.

† Loc. cit., p. 52.

‡ John Thompson, Regius Professor, &c. Edinburgh, 1816.

putation was not at all performed, and among those where it had been postponed, was so much in excess over the cases of mortality after the cases of prompt amputation, that many regrets existed among the army surgeons that primary amputations had not been more frequently performed. This axiom then of British practice, established on the most memorable occasion of modern times, has met with but little to disturb its ascendancy since, and may now, therefore, be viewed as the dominant doctrine of the profession there.

In a recent lecture by Mr. Guthrie,\* his opinions previously expressed on the result of his Peninsular service, are reiterated in substance as follows, to-wit: Immediate resection when the limb is in a hopeless state. The exception being when the patient is so prostrated as to render it evidently hazardous at once to his life. A delay of from five to eight hours and the use of stimulants are then recommended. He considers amputations done within the first twenty hours, over such as are done after several days or weeks, so superior as to admit no longer of dispute. He appears, however, to omit the question whether amputations at any period have an advantage over no amputations at all. He admits that amputations below the shoulder joint downwards, and below the knee downwards, may almost always be done with safety, but the sooner the more sure. Amputations any where above the middle of the thigh have always considerable danger. The latter being, then, the really turning point of the enquiry, the question should first of all be settled, whether immediate amputation, delayed amputation, or no amputation at all of this part, be better; and as immediate or delayed amputation in the two other cases do not differ materially in their results, so incidental circumstances may direct the surgeon. But it may be doubted always, I say, whether the immediate repetition to the limb of a severe injury by amputation is likely to be so balmy, as the admission of a fair interval of time. I consider it highly inconclusive to group amputations by the limb instead of by the region of the limb, and still more so to speak of all sorts of amputations in a sum, without any analysis.

\* See American Medical Journal, Oct. 1852, p. 530, from *Lancet*, May 1, 1852.



The surgeon most influential in obtaining the present professional conviction in favor of immediate amputation after injuries requiring the resection of the limb, is unquestionably the celebrated Baron Larrey.\* His surgical life began in 1789, and was continued with great activity for the next twenty-six years, when the downfall of the Emperor Napoleon composed the disturbed state of Europe. In this long service he was the constant attendant of his celebrated master, and present at all his great battles as Surgeon-in-Chief. His amputations were sometimes fifty or sixty a day, and, on one occasion, amounted to two hundred. Seeing for himself to such an amazing extent, and receiving the most authentic reports from all quarters, it would be difficult to find elsewhere such an amount of information. It would appear that under his observation more than three-fourths have recovered, which he ascribes to a more correct appreciation of the time for operating, to more methodical dressing, and to a more simple and less painful process than in preceding times. His rule is, that when a limb is so shattered that it cannot be saved, amputation should be done in the first twenty-four hours.†

Immediate amputation is, however, far from being the universal doctrine of the French schools. The Baron Percy, as previously remarked, disallowed it in his manual for army surgeons, published, in the year 1792, but understood to have been well received at a comparatively recent date. And Blandin, so late as 1829,‡ leaves us with the same conclusions in regard to his sentiments.

The American surgeons, in the war of 1812, followed to a large extent the prevailing French and English practice of that period; among them we may mention Dr. Mann; yet he states that after the battle of Little York and Fort George, a less number survived primitive than consecutive amputation. Three or four, it appears, died immediately after the operation, whereas there was not a single case of death during the campaign (1813) occasioned by consecutive amputation § We regret that he has not furnished us with the results of more than thirty amputa-

\* See *Memoirs of Milit. Surg.*, passim. Balt. Ed. 1814. Translation by R. W. Hall, M. D.

† Loc. cit. p. 79.

‡ See *Dict. de Med. et de Chirurg. Prat. Art. Amputation.*

§ *Medical Sketches*, p. 213.

tions executed after the battle of the 11th of September, 1814, on Lake Champlain, rendered more memorable by the naval victory of Commodore McDonough. Dr. Amasa Trowbridge,\* also an experienced surgeon of that time, and still alive, has given his testimony in favor of immediate amputation when there is no prospect of the ultimate restoration of the limb.†

In a valuable communication under date of April 30, 1851, from Dr. J. B. Whitridge, now of Charleston, S. C., and one of the U. S. Army surgeons of the war of 1812, he has furnished me with his views generally on the subject of amputation. Among other remarks he says: "According to my observations and experience amputation should always be performed as soon as possible after the accident or wound has taken place, which creates the necessity of the operation." He enjoys the reputation of a highly skilful and successful surgeon.

In the Naval fight on Lake Erie, September 10th, 1813, Dr. Usher Parsons,‡ the fleet surgeon, adopted the same plan of immediate amputation. The American squadron contained about six hundred, all told. The flag ship, the *Lawrence*, under Commodore Perry, had mustered in the morning one hundred men fit for duty. The action lasted three hours, and left at 3 o'clock P. M., twenty-one dead and sixty-three wounded, only sixteen unhurt. The whole number of wounded in the squadron

• This gentleman, though now at an advanced age, exhibits an unflinching energy in the exercise of his profession. His residence being in Watertown, in the northern part of the State of New York, he has enjoyed for nearly half a century a most prominent reputation as an operator. In recent communications from him, he reports ninety amputations of the thigh in private practice since 1809. Of the first thirty-five, only one died immediately after the operation; the remainder recovered from the operation, and continued to live for a well marked time afterwards. His report in detail was published in the *Boston Medical and Surgical Journal*. He lately performed his eighteenth operation (lithotomy) for stone in the bladder, this case terminating, as all the previous ones, in success. Of these, three were instances of foreign body in the bladder, one being a slate-pencil two inches long, one a piece of willow stick one and a half inches long, and one a bit of sealing wax two inches long and three-fourths of an inch in circumference. In thirteen cases of tracheotomy for foreign bodies, twelve were successful.

† See *Boston Med. and Surg. Journ.*, 1838.

‡ See *New England Journal of Med. and Surg.*, Oct. 1818, p. 313.

was ninety-six, of these, only three died; one from compound fracture of the shoulder, in which the bones were in part carried away, one from mortification of the lower extremity, and a third from fracture of the skull. The moral influence of victory was strongly illustrated in this engagement. It is known that the flag ship struck her colors; medical aid, the Doctor tells us, was then rejected, and the cry at once was, "sink the ship, let us all sink together." The translation of the Commodore to the Niagara, and the bringing of that ship into action, changed the fortune of the day, and shouts of victory immediately ascended. Its influence was seen in the remarkably few deaths of the wounded. Dr. Mann says that the same happy consequences attended the victory on Lake Champlain. The prodigious and glorious successes of the British arms in the Peninsular campaigns may account for many of the recoveries there also.

## APPENDIX.

The following tabular statements on this subject may be presented with some advantage. In the Pennsylvania Hospital it appears from the report of Dr. George W. Norris, one of the surgeons,\* that there had been fifty-six amputations from January 1, 1831, to January 1, 1838, a period of seven years, under the following circumstances:

*Pennsylvania Hospital.*

	Aggregate Amputations.	Died.	Recovered.	Accidental Amputations, or prompt.	Died.	Recovered.	Amputation delayed or from disease.	Died.	Recovered.	Total.
Thigh . . .	XIII.	6	7	VI.	4	2	VII.	2	5	13
Leg . . .	XVI.	9	7	IV.	1	3	XII.	8	4	16
Foot . . .	IV.	1	3	I.	1		III.†		3	4
Shoulder Joint . .	II.	2		I.	1		I.	1		2
Arm . . .	VI.	2	4	IV.	2		II.		2	6
Fore arm . . .	XIII.	2	11	VIII.	2†	6	V.		5	13
Hand . . .	II.		2				II.		2	2
		22	34		11	11		11	21	56

\*See Amer. Jour. Med. Sci. vol. 22, p. 356.

† Dr. Norris has not stated whether these were after prompt or delayed amputation.

‡ Two on same patient.

*Pennsylvania Hospital from Jan. 1, 1838, to Jan. 1, 1840.\**

	Aggregate.	Died.	Recovered.	Prompt.	Died.	Recovered.	Delayed.	Died.	Recovered.	Total.
Thigh . . .	IV.		4				IV.		4	4
Leg . . .	X.		10	VII.		7	III.		3	10
Foot, partial . . .	I.	1		I.	1					1
Arm . . .	VI.		6	III.		3	III.		3	6
Fore arm . . .	III.		3	I.		1	II.		2	3
		1	23		1	11			12	24

In regard to the Massachusetts General Hospital, it appears from the Report,\* including the amputations from January 1822, to January 1, 1850, that the aggregate had been one hundred and forty-six on one hundred and forty-one patients, thirty-two of which had died :

85 in consequence of disease, of whom 10 died, i. e. 1 in  $8\frac{1}{2}$  cases.

56 " injury, " 22 " 1 in 3 "

I have condensed the report into the following table :

	Aggregate.	Died.	Recovered.	Prompt Amputation.	Died.	Recovered.	Delayed Amputation.	Died.	Recovered.	Total.
Thigh . . .	LXIX.	19	50	XIV.	7	7	LV.	13	42	69
Leg . . .	L.	10	40	XIII.	3	10	XXXII	6	31	50
Arm . . .	XI.	1	10	III.	1	2	IX.		9	11
Fore arm . . .	XI.	2	9	V.	1	4	VI.		6	11
		32	109		12	23		19	87	141

\* See Amer. Journ. Med. Sc., vol. 26, p. 36. Paper by Dr. George W. Norris.

† By George Hayward, M. D., one of the surgeons. See Boston Med. and Sur. Journal, Oct., 1850.

*New York Hospital.\**

	Aggregate Amputations.	Died.	Recovered.	Accidental Amputations, or prompt.	Died.	Recovered.	Amputation delayed, or from disease.	Died.	Recovered.	Total.
Thigh . . .	XXXIV.	11	23	IX.	3	6	XXV.	8	17	34
Knee Joint . .	I.	1					I.	1		1
Leg . . .	XXIV.	7	17	XV.	6	9	IX.	1	8	24
Shoulder Joint .	IX.	4	5	VII.	4	3	II.		2	9
Arm . . .	XI.			VIII.		8	III.		3	11
Fore arm . .	XI.	3	8	VI.	1	5	V.	2	3	11
		26	53		14	31		12	33	90

It is to be regretted, I say, that we have not more statistics of the result of amputations in our Mexican army. Immediate amputation appears to have been the favored practice. "No rule was more universally acted upon by the surgeons of our army in Mexico, from the battle of Palo Alto to the treaty of peace, than the one laid down by Hennen, with as little delay as possible.†

As this was so uniform a proceeding, the opposite had but a very imperfect trial, and the statistics of success not being given by Dr. Porter in his paper, there are no means of comparing with the results in other places. We hope that some gentleman of the army will devote himself to the collecting of facts on this subject while they are still so accessible.

We are informed by Dr. Richard McSherry, of the U. S. Navy,‡ that he did not see in his own practice, or in that of any other surgeon, a single case of cure after severe injury of the thigh or knee, either with or without amputation. This was in an attendance of eight months in the hospitals of the city of Mexico, after the fighting was over, and it applies to wounds fracturing the os femoris. All other wounds seemed to do as well in that city as in other

\* See American Journal Med. Sc., July, 1848. Statistics, &c., of Amputations from Jan. 1, 1839, to Jan. 1, 1848.

† Medical and Surgical Notices, &c., by John B. Porter, M. D., surgeon U. S. Army, in American Journal of the Medical Sciences for July, 1852.

‡ See Amer. Jour. Med. Sc., July 1849.

climates, and he presumes that not one case in twenty was fatal after amputation of the arm.

*Report of Prof. RESTELLI, of the Sardinian Army.\**

	Aggregate.	Died.	Recovered.	Prompt Amputations.	Died.	Recovered.	Delayed.	Died.	Recovered.	Total.
Hip Joint . . .	I.		1	I.						1
Thigh . . .	XVIII.	10	8	XI.	4	7	VII.	6	1	18
Leg . . .	IV.	1	2				I.	1		4
Shoulder Joint . .	III.	1	2	I.		1	II.	1	1	3
Arm . . .	XVII.	6	11	X.	1	9	VII.	5	2	17
Fore arm . . .	III.	1	2				III.	1	2	3
		19	26		5	17		14	6	46

The conclusion drawn from the above, by Prof. Restelli is, that prompt amputations are more felicitous in their results, than delayed.

In the African campaigns of the French in 1837, '38, and '39, according to the report of Dr. Guyon, of sixty-three amputations of all the limbs, including six at the shoulder-joint, seventeen patients died and forty-six recovered, and the results were about the same in prompt and in tardy operations. The report is, however, very unsatisfactory, from the want of details in regard to precise time, and to deaths in relation to the places of amputation. For, by putting into one sum all the deaths, it confounds things widely separated in other respects,† and leaves us without guide, at least so far as the objects of the present observations are concerned.

The report of M. Malgaigne in regard to the results of amputation in the Paris hospitals for traumatic lesions, from 1836 to 1846, is a remarkable document.‡ For example in

\* See British and Foreign Med. Chirug. Review. Oct., 1850.

† See Brit. and For. Medical Review, vol. xii. 1841. From *Gazette Medicale*.

‡ See Amer. Journ. Med. Sc. New Series, Oct., 1848, p. 468. From *Med. Times*.

Thigh,	44 amputations.	34 deaths,	over 3 in 4
Leg,	67 “	42 “	nearly 2 in 3
Foot,	8 “	5 “	over 1 in 2
Shoulder,	7 “	7 “	Total fatality.
Arm,	29 “	17 “	nearly 2 in 3
Fore arm,	10 “	2 “	1 in 5

The events of 1848, when a large number of wounded insurgents were admitted into the St. Louis Hospital, appear to have left M. Malgaigne and his colleague, M. Gosselin, in the same discouragement on the subject of amputations being performed at all; and it seems that he has reached the conclusion that the opinion of military surgeons on the advantage of primary amputations, did not rest upon a very solid basis, and that in the attempt to preserve the limbs of the wounded, the surgeon did not place them in greater hazard than in amputation. It thus happens that after half a century or more of established opinion on this great point, it is now in a state of vacillation, and may possibly return to where Bilguer left it in 1762. If there be any thing intermediate to these two extremes, in its application to the present state of civil surgery in regard to railroad accidents, &c., it is, I repeat, to leave the limb, when it is hopelessly injured, without any other resection, than that of cutting off the dangling part, squaring with a saw the end of the bone, and trusting the rest to nature. In our present limited experience on this subject, I can not say that the proceeding is absolutely recommended; but there are arguments enough to invite a fair trial, and especially in compound fractures of the thigh and of the leg, where danger is so imminent, either in amputating or in trusting to nature entirely.

In conclusion, we would recommend that in the tabular form of hospital reports on the subject of amputation, the time should be regularly marked, whether it be under or above four days. Four days is probably the extremity of time for primary or prompt amputation; after that time nothing should be done for fourteen or twenty days more. Then the time for an amputation ranges for the remainder of the disease. Also, no sound reasoning can be founded upon the aggregation into one sum of all amputations, inasmuch as they vary so much in fatality, de-

pending upon the limb. The thigh, the shoulder and the leg, being the most fatal, should each have its respective consideration. The European reports that I have seen are very defective in these respects, and many of them, which would otherwise have been of value to the American reader, are, for the want of such information, passed over on the present occasion. It would be a great acquisition to the profession generally, if some one there near the seat of information, would go to work and reconstruct all of their statistical tables upon a more exact plan. To say that a patient died after amputation, is to say only one half, there may have been circumstances entirely independent of the original injury and of the amputation which led to death. These circumstances may have been of so serious a character as to destroy, of themselves, the patient; as for example—internal injuries besides external; or internal fatal diseases so far advanced that nothing could cure them, as tubercles of the lungs, brought on by caries of bones or diseases of joints. The *post hoc* is always a different consideration from the *propter hoc*, and in no one affair more than in amputations as a class of surgical affections. Our own general conclusion from what we have seen and learned would be, that amputations in the length of the bones of the upper extremity, anywhere below the shoulder joint, may be performed indiscriminately, either at once or subsequently. Perforations by balls through the elbow and wrist, in their ulterior consequences, involve great hazard to the life of the patient; but some patients recover. It is, perhaps, therefore, better to delay amputation, as there is no immediate danger for the most part. Compound fracture of the thigh is imminently dangerous, either with or without regular amputation. An intermediate plan has therefore been suggested, which, for similar reasons, may be applicable to the leg also, to-wit: the excision of the limb through the ray of attachment, and the simple squaring off of the ragged end of the bone.